National Library of Canada
Acquisitions and Bibliographic Services Branch
395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale du Canada
Direction des acquisitions et des services bibliographiques
395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

Canada

UNIVERSITY OF ALBERTA

RATIONAL CHOICE VERSUS RATIONALIZATION OF CHOICE

BY

© PATRICIA JOAN WHITE

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY.

IN

MARKETING

FACULTY OF BUSINESS

EDMONTON, ALBERTA

FALL 1994

National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-95283-0

Canada

UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: Patricia Joan White

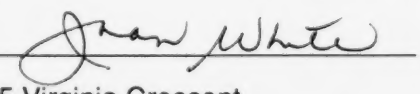
TITLE OF THESIS: Rational Choice versus Rationalization of Choice

DEGREE: Doctor of Philosophy

YEAR THIS DEGREE GRANTED: 1994

Permission is hereby granted to the University of Alberta Library to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves all other publication and other rights in association with the copyright in the thesis, and except as hereinbefore provided neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in any material form whatever without the author's prior written permission.



95 Virginia Crescent

Sherwood Park, Alberta

T8A 4M2

June 28, 1994

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled RATIONAL CHOICE VERSUS RATIONALIZATION OF CHOICE submitted by PATRICIA JOAN WHITE in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY in MARKETING.

Dr. Richard D. Johnson
(Supervisor)

Dr. Adam Finn

Dr. Michael Gibbins

Dr. Mukesh Bhargava

Dr. Curt Hoffman

Dr. Catherine A. Cole

June 20, 1994

To my daughters, Shawna, Carly, and Kimberly, and my mother, Patricia Hein, for their love, support and understanding.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

CHAPTER 1: INTRODUCTION AND STATEMENT OF OBJECTIVES **1**

1.1 Introduction 1

1.2 Contributions of the Dissertation 3

1.3 Purpose of Dissertation 3

1.4 Outline of Dissertation 4

CHAPTER 2: LITERATURE REVIEW **5**

2.1 Introduction 5

2.2 Formal Models of Decision Making: The Consumer as a Utility Maximizer 6

2.3 Decision Analysis 6

2.4 Are Consumers Rational? 7

2.5 Information Processing Approach to Decision Behavior 8

2.6 Attention 8

2.7 Perception 9

2.8 Memory 10

2.9 Hypothesis Testing 11

2.10 Framing the Problem 12

2.11 Initial Impression 13

2.12 Biased Information Search 14

2.13 Belief Perseverance 15

2.14 Overconfidence 16

2.15 Justification 16

2.16 Summary 18

CHAPTER THREE: RATIONALIZATION OF CHOICE MODEL: CONCEPTUAL FRAMEWORK 20

3.1 Introduction 20

3.2 Rationalization of Choice Model 20

3.3 Rationalization of Choice Model and the Information Processing Paradigm 22

3.4 Rational Choice versus Rationalization of Choice 22

3.5 Distinctions Between Rational Choice and Rationalization of Choice 24

3.6 The Choice Commitment Occurs Early 25

Proposition 1 25

3.7 The Choice Commitment is Triggered by a Stimulus 27

Proposition 2 27

3.8 The Consumer Attends to the Stimulus 30

Proposition 3 30

3.9 Limited Initial Information Search 31

3.10 Continued Information Search after Committing to a Choice 32

Proposition 4 32

Proposition 5 32

3.11 Biased Information Evaluation 34

Proposition 6 34

	Proposition 7	34
3.12	Justification of the Choice	35
	Proposition 8	35
3.13	Limiting Conditions of the Rationalization Process	36
	Proposition 9	36
	Proposition 10	36
	Proposition 11	36
3.14	Change in the Choice Commitment	37
	Proposition 12	37
3.15	Rationalization of Choice Model: Discussion and Summary	38
CHAPTER 4: EXPERIMENTAL METHOD		**42**
4.1	Introduction	42
4.2	Experimental Design	43
4.3	Experimental Procedure	43
	4.3.1 Section One - Prior Preferences	43
	4.3.2 Section Two - Trigger Stimulus (Advertisements)	44
	4.3.3 Section Three - Justification, Information Search, Choice and Confidence Measures	46
	4.3.4 Section Four - Justification Manipulation Check	49
	4.3.5 Section Five - Experimental Manipulation Checks	50
4.4	Subjects	50
4.5	Product and Prior Preferences	50
4.6	Trigger Stimulus	52
4.7	Early Choice Commitment	53

4.8 Pretesting 53

4.9 Summary 54

CHAPTER 5: HYPOTHESES 55

5.1 Introduction 55

5.2 Amount of Search (Total Number of Acquisitions) 55

5.3 Amount of Confirmatory Bias 56

5.4 Choice Outcome 58

5.5 Change in Preference 59

5.6 Confidence 60

5.7 Summary 61

CHAPTER 6: MANIPULATION PRETEST EXPERIMENTS 62

6.1 Introduction 62

6.2 Pretest Experiment 1 - Product Preferences 62

6.3 Pretest Experiment 2 - Justification Manipulation 65

6.4 Pretest Experiment 3 - Brand Name: "Novel" Product 70

6.5 Pretest Experiment 4 - Ad Effectiveness 71

6.6 Pretest Experiment 5 - Pretest of Main Experiment 73

CHAPTER 7: ANALYSIS OF DATA 75

7.1 Introduction 75

7.2 Subjects 75

7.3 Dependent Variables 76

7.4 Tests of Hypotheses 77

7.4.1 Amount of Search 78

7.4.2 Amount of Confirmatory Search Bias 80

7.4.3 Choice Outcome 84

7.4.4 Change in Preference 87

7.4.5 Confidence 89

7.5 Clarity of Instructions, Task Difficulty, and Similarity of Task to Actual Decision Making 90

7.5.1 Clarity of Instructions 90

7.5.2 Mental Effort Required 91

7.5.3 Similarity of Task 91

CHAPTER 8: DISCUSSION AND CONCLUSIONS 94

8.1 Introduction 94

8.2 Experiment 95

8.3 Comparison of Rational Choice to Rationalization of the Choice 97

8.4 Boundary and Limiting Conditions of Rationalization of Choice Model 98

8.5 Marketing Implications 102

8.6 Future Research Directions 104

8.7 Summary 105

TABLES 106

FIGURES 147

LITERATURE CITED 163

APPENDIX 172

LIST OF TABLES

TABLE 6-1	Brand Preferences	106
TABLE 6-2	Ownership and Use in Four Product Categories	107
TABLE 6-3	Effect of Survey and Order of Presentation on Choice	108
TABLE 6-3a	Product Choices by Group and Survey Type	109
TABLE 6-4	Hypothesis Testing - Information Use by Product Choice	110
TABLE 6-5	Brand Names: Electronic Tutor - Ranking	111
TABLE 6-6	Test for Ad Effectiveness - VCRs - MANOVA	112
TABLE 6-7	Test for Ad Effectiveness - Tutors - MANOVA	113
TABLE 6-8	Average Ratings Indicating Ad Effectiveness - VCRs	114
TABLE 6-9	Average Ratings Indicating Ad Effectiveness - Tutors	115
TABLE 7-1	Effect of Trigger Stimulus, Justification, and Timing of Choice on Total Amount of Information Searched - VCRs	116
TABLE 7-2	Effect of Trigger Stimulus, Justification, and Timing of Choice on Total Amount of Information Searched - Tutors	117
TABLE 7-3	Simple Effects Follow Up Tests: Total Search: Timing of Choice by Justification - VCRs	118
TABLE 7-4	Simple Effects Follow Up Tests: Total Search: Timing of Choice by Justification - Tutors	119
TABLE 7-5	Simple Effects Follow Up Tests: Total Search: Trigger by Justification Interaction - Tutors	120
TABLE 7-6	Effect of Trigger Stimulus, Justification, and Timing of Choice on Confirmatory Search Bias - VCRs	121

TABLE 7-7 Effect of Trigger Stimulus, Justification, and Timing of Choice on Confirmatory Search Bias - Tutors 122

TABLE 7-8 Tukey HSD Tests for Confirmatory Search Bias - VCRs: Matrix of Pairwise Comparison Probabilities Timing of Choice 123

TABLE 7-9 An Examination of Confirmatory Search Bias on the Choice Commitment/Announcement 124

TABLE 7-10 Tukey HSD Tests for Confirmatory Search Bias - VCRs: Matrix of Pairwise Comparison Probabilities Justification 125

TABLE 7-11 Tukey HSD Tests for Confirmatory Search Bias - Tutors: Matrix of Pairwise Comparison Probabilities Justification 126

TABLE 7-12 Effect of Justification and Trigger Preferences on Confirmatory Search Bias - VCRs 127

TABLE 7-13 Simple Effects Follow Up Tests: Confirmatory Search Bias: Justification by Trigger/Preference 128

TABLE 7-14 Effect of Trigger Stimulus, Justification, and Prior Preferences on Choice - VCRs 129

TABLE 7-15 Effect of Prior Preferences and Trigger on Choice Outcomes - VCRs, Multinomial Logit 130

TABLE 7-16 Effect of Trigger Stimulus and Justification on Choice - VCRs, Percentage of Subjects 131

TABLE 7-17 An Examination of the Choice Commitment on the Announced Choice 132

TABLE 7-18 An Examination of Change in Preference: Observed and Expected Values 133

TABLE 7-19 Effect of Trigger Stimulus, Justification, and Timing of Choice on Self-Reported Confidence - VCRs 134

TABLE 7-20 Effect of Trigger Stimulus, Justification, and Timing of Choice on Self-Reported Confidence - Tutors 135

TABLE 7-21 Effect of Trigger Stimulus, Justification, and Prior Preferences on Self-Reported Confidence - VCRs 136

TABLE 7-22 Effect of Trigger Stimulus, Justification, and Timing of Choice on Clarity of Instruction 137

TABLE 7-23 Tukey HSD Tests for Clarity of Instructions: Matrix of Pairwise Comparison Probabilities 138

TABLE 7-24 Effect of Trigger Stimulus, Justification, and Timing of Choice on Mental Effort of Task 139

TABLE 7-25 Effect of Trigger Stimulus, Justification, and Timing of Choice on Similarity of Mental Process 140

TABLE 7-26 Simple Effects Follow Up Tests: Similarity of Mental Process 141

TABLE 7-27 Tukey HSD Tests for Similarity of Mental Process: Matrix of Pairwise Comparison Probabilities 142

TABLE 7-28 Effect of Trigger Stimulus, Justification, and Timing of Choice on Justification to Friends 143

TABLE 7-29 Effect of Trigger Stimulus, Justification, and Timing of Choice on Friends Justify Choices 144

TABLE 7-30 Effect of Trigger Stimulus, Justification, and Timing of Choice on Justification for Choice 145

TABLE 7-31 Tukey HSD Tests for Justification for Choice: Matrix of Pairwise Comparison Probabilities 146

LIST OF FIGURES

Figure 3-1	Rational Decision Process	147
Figure 3-2	Rationalization of Choice Model	148
Figure 4-1	Experimental Procedure	149
Figure 6-1	Hypothesis Testing	150
Figure 6-2	Outcome Justification	151
Figure 6-3	Process Justification	152
Figure 6-4	Justification Control	153
Figure 7-1	Experimental Design and Number of Subjects Per Cell	154
Figure 7-2	Total Amount of Search by Condition	155
Figure 7-3	Justification by Timing of Choice - VCRs	156
Figure 7-4	Justification by Timing of Choice - Tutors	157
Figure 7-5	Justification by Trigger - Tutors	158
Figure 7-6	Confirmatory Search - Justification	159
Figure 8-1	Propositions of Rationalization of Choice Model: Results	160
Figure 8-2	Justification Manipulation	162

Abstract

A model of consumer decision making is proposed and tested. The model proposes that the choice commitment occurs early in the decision process, followed by information search and evaluation that are biased toward the choice commitment (rationalization of choice). It is suggested that consumers use a rationalization process to justify or confirm their choice commitment. This view of decision processing is contrasted with the typical rational choice decision approach which considers the choice decision as occurring at the final stage, as an output of information search and evaluation. In addition, two of the boundary conditions of the proposed rationalization process are investigated. Specifically, the rationalization process is examined under conditions in which the choice outcome and/or the decision process must be justified. Marketing implications of the rationalization process are discussed.

"The human understanding when it has once adopted an opinion draws all things else to support and agree with it. And though there be a greater number and weight of instances to be found on the other side, yet these it either neglects and despises, or else by some distinction sets aside and rejects, in order that by this great and pernicious predetermination the authority of its former conclusion may remain inviolate."

Francis Bacon

CHAPTER ONE

Introduction and Statement of Objectives

1.1 Introduction

This research proposes a model of consumer decision making in which the choice commitment occurs early in the decision process, followed by information search and evaluation that are biased toward the choice commitment (rationalization of choice). The model proposes that consumers go through a rationalization process after the choice commitment is made which is directed toward justifying or confirming the choice commitment. This view of decision processing is contrasted with the typical rational choice decision approach which considers the choice decision as occurring at the final stage, as an output of information search and evaluation. The focus of this research is on extending the understanding of consumer choice processes, rather than predicting choice behavior.

The presentation of a rationalization decision process model is important for two reasons. First, the model acknowledges a common belief among researchers (e.g. Hoch and Loewenstein 1991) that consumers do not necessarily follow a strictly rational process in the determination of choice, by proposing that consumers may be selective in their information search and that attributes may be differentially weighted by the consumer. In particular, the proposed model suggests that information search is primarily directed at gaining sufficient information to justify the choice commitment, and that attribute importance is dependent on the alternative to which the consumer has committed. Second, the model presents a novel approach to the consumer decision process by proposing that the consumer commits early to a choice decision.

A variety of studies directed at predicting choice behavior (e.g. Louviere 1988; Green and Srinivasan 1978) assume that the choice decision occurs late in the decision process, after an unbiased information search and evaluation of alternatives. However, recent marketing literature has explored choice processes involving the limited amount of information searched by consumers (e.g. Lynch, Marmorstein and Weigold 1988), the biased nature of consumer learning (e.g., Hoch and Deighton 1989), and the tendency of consumers to choose alternatives which provide the best reasons for their choice (e.g. Simonson 1989).

Although arguments have been made that consumers do not necessarily follow a rational decision process (e.g. Hoch and Loewenstein 1991), the rational choice decision model is still considered a normative model to which alternative decision models should be compared (e.g. Slovic, Lichtenstein and Fischhoff 1988). Thus, the propositions of the rationalization of choice model are contrasted to the rational choice model.

As well, the dissertation includes a discussion of the boundary or limiting conditions within which the rationalization process may or may not operate. In particular, a distinction is made between choice outcome and choice process. It is suggested that consumers who anticipate having to justify their decision outcome will be more likely to use a rationalization process, seeking confirmatory evidence for their choice decision. In contrast, consumers who anticipate having to justify their decision process will tend toward a more rational process, based upon a more objective information search and evaluation. Thus, a consumer's decision process could be viewed as using a rationalization process, a rational process or a mixed model which combines the two processes (i.e. rational processing first, followed by a rationalization process). The mixed model is not

discussed further but is a possible future research area.

1.2 Contributions of the Dissertation

This research makes four main contributions to the marketing and judgment and decision making literatures. First, this dissertation proposes that consumers use a rationalization process when making choices. It extends recent research which has questioned the dominance of the rational choice model of consumer choice behavior, suggesting that individuals do not always behave in the rational manner assumed by many decision models (e.g. Hoch and Loewenstein 1991). Although the rational decision process has been questioned, a rationalization decision process has not been described in the literature. Second, it is suggested that little information may be needed for the choice decision, although additional information is gathered after a choice commitment has been made. This is in contrast to the expected utility and information processing approaches to decision making which characterize the decision as essentially rational and based on information. The third contribution follows from the second, in that it is proposed that the choice commitment generally occurs very early in the decision process. In contrast, the rational decision models suggest that the decision is the end result of information search and evaluation. And fourth, the rationalization of choice model posits considerable post-choice information search and evaluation. In contrast, the rational decision models suggest that information search and evaluation essentially end when the decision is made.

1.3 Purpose of Dissertation

This research sets three objectives.

The first objective is to formalize the rationalization of choice model, contrast the proposed model to rational choice models, and test the main

propositions of the proposed model in an experiment.

The second objective is to discuss possible boundary or limiting conditions within which the rationalization process may or may not be observed and to examine two of these boundary conditions in an experimental manipulation. In particular, the rationalization process will be examined under conditions in which the decision outcome and/or the decision process must be justified.

The third objective is to explore marketing implications of the rationalization process. In particular, the managerial significance of the model is explored.

1.4 Outline of Dissertation

Chapter Two reviews literature relevant to the dissertation. The chapter begins with an overview of rational decision models and a discussion of decision behavior within the information processing paradigm. These sections are followed by a discussion and examination of the biased nature of an individual's decision process and reviews relevant literature from cognitive psychology, social psychology, and judgment and decision making. The rationalization of choice model is proposed in Chapter Three. Chapter Four describes the experimental method used to test the nine hypotheses which will be used to test the main propositions of the rationalization of choice model. The hypotheses are discussed in Chapter Five. Chapter Six describes the experiments used to pretest manipulations and measures prior to the implementation of the main experiment. Chapter Seven discusses the analysis of the data and Chapter Eight provides a summary and discussion, suggests possible marketing implications of the rationalization process, and proposes future research directions.

CHAPTER TWO

Literature Review

2.1 Introduction

The information processing approach to decision theory, developed as an alternative to the utility maximizing framework, incorporated the cognitive limitations of the individual as well as a consideration of the psychological processes by which decision processes are represented and information is used. The proposed rationalization of choice model builds upon the information processing decision model by suggesting that information gathering and evaluation is a biased process once an individual has made a choice commitment.

This chapter begins by presenting an overview of the traditional utility-based rational decision model based on the economic framework, and continues with a discussion of decision behavior within the information processing paradigm. The primary focus of the chapter, however, is on the biased nature of an individual's decision strategy, which is the foundation of the rationalization of choice model.

This chapter draws primarily on research in social psychology, cognitive psychology, and judgment and decision making. The underlying theme of this discussion is that an individual's decision strategy cannot always be framed as a strictly rational process in which the individual impartially searches and evaluates information before making a decision. In particular, research indicates that individuals typically form a single hypothesis which then leads them to biased information search and evaluation of evidence.

2.2 Formal Models of Decision Making: The Consumer as a Utility Maximizer

Early decision models based on formal economic theory (e.g. von Neumann and Morgenstern 1944) presented the individual as a utility maximizer who follows a rational procedure for making decisions. These models assumed that the individual has access to perfect information, is sensitive to differences in alternatives and is able to weakly order these alternatives, know his own preferences and make choices (for a review see Slovic, Lichtenstein and Fischhoff 1988). Lacking in these early decision models was any consideration of the cost of the decision process to the decision maker (but see Shugan 1980; Stigler 1961 for exceptions). These normative models, which emphasize rationality and optimality, have been used as a standard when examining actual decision behavior. As a result, these models have been instrumental in focusing attention on the discrepancies between descriptive and normative choice behavior, and have prompted substantial research on heuristics and decision rules used by individuals (e.g. Kahneman and Tversky 1973; Nisbett and Ross 1980).

It is now generally accepted that, although utility maximization can predict the outcomes of many decision making processes, it provides only limited understanding of how decisions are made (Dawes and Corrigan, 1974; Slovic, Lichtenstein and Fischhoff 1988). While utility theory still provides the basis for the analysis of many applied decision problems, empirical evidence has prompted the questioning of the previously accepted principles of rationality as descriptive of actual decisions in real markets.

2.3 Decision Analysis

Most of the day-to-day decisions that an individual makes cannot be

examined by the traditional decision models discussed above for a number of reasons. First, in most decisions, there are no easily predetermined probabilities (or subjective utility functions) to ascertain "correct" decisions (Koehler 1991). Second, individuals tend to respond to situations as they interpret them, not as they exist in some objective reality (Carroll and Johnson 1990). And third, few decisions involve explicit balancing of costs and benefits, let alone explicit use of probability, two central components of traditional decision theory (Mitchell and Beach 1990).

2.4 Are Consumers Rational?

Substantial evidence indicates that consumers do not always make the rational decisions prescribed by normative models. A long list of human judgmental biases, deficiencies, and cognitive illusions have been identified and investigated (e.g., Kahneman, Slovic and Tversky 1982; Nisbett and Ross 1980; Slovic, Fischhoff, and Lichtenstein 1977). For example, individuals typically base their judgment of whether Steve is a librarian on the degree to which Steve fits the stereotype (or is representative) of a librarian rather than basing their judgment on the base rate (or population proportion) of librarians (Kahneman and Tversky 1973). Thus, in this example, representativeness takes precedence over base rates, resulting in a violation of the normative model.

Actual decision making behavior may be better described in terms of bounded rationality (Simon 1955). The decision maker attempts to attain some satisfactory, rather than maximum, level of utility, a goal that Simon labelled satisficing. More recently, Simon (1978) has argued for different types of rationality, making a distinction between the narrow economic meaning of maximizing behavior and the more general dictionary definition of "being logical, the ability to reason." This broader definition rests on the assumption that

behavior is functional. Individuals have motivations and they use reason to respond to these motivations in the realization of their goals (Simon 1986).

2.5 Information Processing Approach to Decision Behavior

Simon's (1955) conceptualization highlighted the role of perception, cognition and learning in decision making and suggested to researchers that they should examine the psychological processes by which the decision problems are represented and information is used in selecting an alternative. This information processing view of decision making emphasizes internal processes, mental limitations and the way in which the processing of information is shaped by these limitations.

In its simplest form, the information processing approach views the individual as attending to a stimulus in the environment, transforming this stimulation into meaningful information, storing the information in memory, and retrieving the information for decision making.

A strong relationship exists between each of the components of the information processing model--attention, perception, and memory. The determination of what stimuli are attended to, what stimuli are encoded, and how they are encoded is influenced by the stimulus itself, knowledge about the stimulus, and the current goals of the individual (Taylor and Fiske 1978). Thus, all components are important in developing a useful understanding of consumer behavior.

2.6 Attention

Almost any kind of mental representation can be considered an element in the cognitive structure, including attitudes, beliefs, and intentions as well as emotions, feelings, values, images, moods, and representations of tastes and smells (Olson and Reynolds 1983). Several researchers have examined the

traditional hierarchical view of the mind (e.g. Dawes 1975; Plato 1942) in which the bottom levels of the hierarchy correspond to the "lower" functions such as emotions and feelings, whereas the highest level of the hierarchy corresponds to the uniquely human capacity of rational thinking. While attending to a stimulus, a number of different mental processes may occur. Many of these processes are low-level processes that occur automatically (Posner and Snyder 1975; Schneider and Shiffren 1977). Higher level or controlled processes require attention, and usually the activation of appropriate knowledge structures, for their execution. "Automatic processing is activation of a learned sequence of elements in long-term memory that is initiated by appropriate inputs and then proceeds automatically--without subject control, without stressing the capacity limitations of the system, and without necessarily demanding attention. Controlled processing is a temporary activation of a sequence of elements that can be set up quickly and easily but requires attention, is capacity-limited and is controlled by the subject" (Schneider and Shiffren, 1977, p. 1).

Selectively attending to a stimulus could be described as an automatic process which is a function of the salience of the stimulus, individual differences, and temporary need states (Taylor and Fiske 1978). That is, over time, the individual acquires ways of acting upon the environment. Cognitive psychology has shown that bright, moving, complex and novel objects elicit attention (Taylor and Fiske 1978). In addition, a particular need state of the individual will influence the direction of attention; for example, a hungry shopper will be more likely to attend to signs advertising restaurants in a shopping mall.

2.7 Perception

Perception refers to how individuals interpret and categorize the information that is received. Perception is an active process of interpreting the

world and is therefore crucial to the results of an individual's information processing (Einhorn and Hogarth 1981). The interpretation of the stimulus depends not only on the stimulus itself, but on the individual's experiences, expectations, lifestyle, and knowledge. The subsequent organization, categorization, and future use of stimulus information depends upon the initial interpretation. Thus, factors which limit perception will also ultimately limit judgment (Gibbins 1984).

2.8 Memory

Specific memory structures exist which provide a guide for choice decisions. For example, prior experience with a product, and knowledge of the choices of other people may be relevant to a choice decision. Since such information is stored in memory, it needs to be retrieved for use in making a choice.

Memory structures or schemas are the framework for representing the consumer's knowledge about, and experience with brands (Sentis and Markus 1983). "Few, if any, stimuli are approached for the first time ... Instead, they are processed through pre-existing systems of schematized and abstracted knowledge--beliefs, theories, propositions, and schemas. These knowledge structures label and categorize objects and events quickly and, for the most part, accurately. They also define a set of expectations about objects and events and suggest appropriate responses to them" (Nisbett and Ross 1980, p. 7). These memory structures exercise a major influence on internal mental behaviors such as information processing and overt behaviors such as purchase choice (Olson and Reynolds 1983).

In addition, for the types of decisions that consumers make, there exist a number of cues that try and make the choice for the consumer (e.g. "AT&T is the

right choice"). These cues are stored in memory and are derived from various forms such as the processing of advertising or discussions with family and friends.

Thus, the components of the information processing paradigm -- perception, attention and memory -- interrelate to form the individual's cognitive representation of a decision or problem and will, therefore, determine the problem space.

2.9 Hypothesis Testing

If understanding the process is the focus of an examination of decision behavior, Simonson (1989) suggested that the best method for studying everyday decision making is by observing how individuals generate, evaluate, and compare arguments for each side of an issue. Rather than providing inputs and observing outputs, one should be more concerned with the initial problem representation, the effect of additional information on the generated hypothesis and the confidence displayed in the decision.

Hypothesis generation and hypothesis testing in both the layperson and the scientist, have captured the interests of decision researchers for more than three decades (e.g. Wason 1960; Klayman and Ha 1987; Koehler 1991). This research suggests that individuals form few hypotheses and often fail to recognize potential alternative hypotheses (Fischhoff, Slovic and Lichtenstein 1978; Gettys and Fisher 1979; Gettys, Mehle and Fisher 1986).

Koehler (1991) defines hypothesis generation as the construction of a specific possibility such as "Ford (Aerostar) makes a better family van." He defines an explanation as an attempt to support the hypothesis with relevant information, for example: "The safety features of the Aerostar have been rated better than all other vans by XXX Motor Magazine, and safety is an important

feature in a family van."

Hoch and Deighton (1989) noted that the factors which inhibit hypothesis generation may also inhibit information search. Thus, in terms of initial hypothesis generation, the individual, as a "cognitive miser" (Fiske 1980), will selectively process information and apply prior knowledge to develop an initial impression of an event. The individual's cognitive structures or conceptual schemas will not only guide and influence the processing of initial information (Bobrow and Norman 1975), but will also guide and influence the search for additional information (Snyder and Swann 1978a).

Once a hypothesis has been established, it becomes the reference position (Koehler 1991). Relevant information retrieved from memory, reorganization of evidence, external information search, and evidence evaluation all revolve around this reference position. In addition, the generation of a hypothesis not only reduces the likelihood that alternative hypotheses will be considered, but the establishment of this hypothesis tends to increase confidence in its truth (e.g. Lord et al. 1979).

2.10 Framing the Problem

There are two main reasons why the act of generating a hypothesis may result in a bias in dealing with subsequent information and evaluation.

The first reason has to do with the way in which a decision has been framed (Kahneman and Tversky 1984; Tversky and Kahneman 1981; 1986). Depending on how the individual frames the problem, important alternatives can be overlooked, making the current hypothesis appear quite plausible because of its lack of competitors. The process of determining the feasibility of a hypothesis demands the fitting of one's knowledge to the hypothesis, which will tend to make distinctive that information that is easily accounted for by the hypothesis.

Research from several areas indicates that information will be interpreted so that it systematically favors whatever the perceiver is looking for (e.g. Chapman and Chapman 1967; 1969). Information consistent with the current frame tends to be more easily comprehended (e.g. Bransford and Johnson 1972; 1973) and more easily recalled (e.g. Anderson and Pichert 1978) than information that is inconsistent. Thus, information retrieved from memory or searched externally may be processed so that there is a good fit between the hypothesis and the evidence.

2.11 Initial Impression

The second reason which is associated with the framing of the problem deals with the individual's initial impression. Substantial literature has documented the importance of first impressions (e.g. Nisbett and Ross 1980; Ross et al. 1975). The first argument considered appears to bias how additional information is processed and seems to suppress changes to the initial hypothesis. This view that impression-relevant information may be processed in a biased manner can be examined in terms of the classic work of Asch (1946) on the formation of personality impressions or in terms of the primacy effect (Anderson 1974). While Anderson (1974) argued that earlier information has a greater impact because it receives more attention or greater weight, Asch (1946) argued that the earlier information changes the meaning of the later information. Thus, subsequent information that is consistent with the initial impression may be interpreted as support for the hypothesis even though the additional information is invalid, unreliable, or irrelevant; contradictory evidence, however, is likely to be dismissed. In addition, Ross et al. (1975) showed that the impression, once formed, becomes autonomous from the evidence upon which the impression was created. Thus, subsequent challenges to that information

may be rejected as irrelevant.

2.12 Biased Information Search

Snyder and Swann (1978b) found that individuals expend more effort searching for hypothesis-consistent than for hypothesis-inconsistent information. Klayman and Ha (1987) suggested that this phenomenon, called the "confirmation bias" (e.g. Einhorn and Hogarth 1981), may be better understood by describing the occurrence as a "positive test strategy." With this strategy in a problem solving situation, individuals tend to test cases that are expected or known to have the property of interest rather than those cases that are expected to lack that property (Fischhoff and Beyth-Marom 1983).

Evidence suggests that individuals differentially perceive and encode information depending on prior knowledge and expectations. In particular, there is selectivity in the encoding of positive and negative information. People may weigh evidence that supports prior knowledge differently from that which contradicts it. Lord, Ross and Lepper (1979) found that subjects rated evidence supportive of a prior theory as more convincing and probative, while discounting contrary evidence. People tend to encode information as consistent with prior knowledge, especially when the evidence is ambiguous (Herr, Sherman and Fazio 1982).

The selectivity of attending to and processing only a subset of information has been examined in terms of the adaptive manner in which individuals respond to their environment (e.g. Schneider and Shiffrin 1977; Fiske 1980). Shaklee and Fischhoff (1982) demonstrated that individuals employ a truncated search in which they tend to search until sufficient grounds to support the hypothesis have been found, and then the search is stopped, even in the presence of conflicting evidence. In addition, Koehler (1991) suggested that individuals may focus on

information that will affirm their hypothesis because processing positive responses may be easier than processing negative responses.

2.13 Belief Perseverance

The notion of biased assimilation and resulting belief perseverance has been the focus of considerable research for many years (e.g. Asch 1946; Chapman and Chapman 1967; Ross et al. 1975). There is substantial evidence that individuals tend to interpret subsequent evidence so as to maintain their initial beliefs, even after being told that the initial information on which they based their judgment was false (Ross et al. 1975; Misra 1992).

Biased assimilation processing may include a propensity to remember the strengths of confirming evidence but the weaknesses of disconfirming evidence (Estes 1976). Dellarosa and Bourne (1984) demonstrated that once a decision has been made, individuals remember decision-consistent information better than decision-inconsistent information. This memory difference is due to differential attention and elaboration at the time of encoding and to the availability of better retrieval cues for consistent information at the time of recall. In addition, individuals tend to judge confirming evidence as relevant and reliable, but disconfirming evidence as irrelevant and unreliable, and to accept confirming evidence at face value while scrutinizing disconfirming evidence very closely (Ross et al. 1975).

When testing a hypothesis, individuals tend to look for evidence that is extreme, preferring to test for properties that are very likely or very unlikely (Skov and Sherman 1986). Extremely positive and extremely negative attributes are considered more informative and are assigned more weight, whereas moderately positive or negative attributes are considered uninformative (Fiske 1980).

2.14 Overconfidence

If an individual assesses the feasibility of a hypothesis by trying to find the best fit between the hypothesis and additional evidence, any ambiguity in the evidence will likely be resolved in a way that best fits the hypothesis (Koehler 1991). This approach, which basically biases the interpretation of subsequent evidence in favor of the hypothesis, may increase the individual's confidence in the truth of the hypothesis. Indeed, the individual's viewpoint may become more polarized (Lord et al. 1979).

Overconfidence in a hypothesis or decision may arise if the individual does not consider alternative hypotheses or opposing reasons, or if the individual is asked to generate an explanation supporting the hypothesis (Lord et al. 1979). If individuals have been asked to provide possible reasons why a generated hypothesis might be false (a counterexplanation), overconfidence in the generated hypothesis will be attenuated. Koehler (1991) noted that while a counterexplanation makes alternative hypotheses more plausible, individuals are unlikely to produce a counterexplanation unless prompted to do so. Koehler (1991) also noted that asking an individual to give reasons why a specific alternative might be correct may be more effective in undoing the effects of explanation than giving a more general set of reasons why a current hypothesis might be incorrect.

2.15 Justification

Numerous studies in social psychology and judgment and decision making have suggested that decision behavior may be better understood in terms of the decision being based on justifications for and against each alternative (e.g. Slovic, Fischhoff, and Lichtenstein 1982).

Koehler (1991) suggested two main reasons why individuals might be

motivated to produce arguments to accompany a hypothesis: individuals might feel compelled to persuade others and individuals may need to convince themselves as well. In addition, considerable work in social psychology has demonstrated that individuals wish to be consistent in their attitudes and behavior and are willing to alter one or the other to attain a consistent state (e.g. Festinger 1957).

Research in cognitive dissonance (Festinger 1957) suggests that individuals will act to reduce dissonance or inconsistency between two cognitions. The intensity of dissonance varies with the importance of the cognitions involved and the relative number of cognitions in dissonant relation to one another. Cognitive dissonance can be reduced or eliminated only by adding new cognitions (e.g., searching for new information) or by changing existing cognitions (by changing perceptions or shifting importance weights). According to the early version of cognitive dissonance, all decisions are followed by dissonance to a certain degree (Festinger 1957). However, more recent studies (e.g., Frey and Rosch 1984) have noted that the process of dissonance-reduction will not be initiated if the choice is not final.

After the decision or judgment has been made, explanations of the decision will necessarily involve feasible rationalizations or other attempts to fill any gaps in knowledge (Nisbett and Wilson 1977, Gibbins 1984). Research on human inference has shown many regularities in the ways people explain their decisions to themselves and to others (e.g. Nisbett and Ross 1980). This suggests that not only is the explanation necessary psychologically but its anticipation may affect the decision (Gibbins 1984; Simonson 1992). Both Gibbins (1984) and Simonson (1992) proposed that if a decision maker is conscious of the need to justify the decision, some of the information gathered

will be directed toward justifying the chosen action, rather than directed toward making the choice. Thus, an information gathering activity occurs after the choice commitment, in order to support a decision already made. These explanations of the decision will involve unavoidable rationalization (Gibbins 1984).

With respect to external justification, the assumption is that decision makers choose alternatives that are perceived as most justifiable to those others who will evaluate their choices, such as superiors, spouses, or groups to which the decision makers belong (Simonson 1989). The influence that others have on individual decisions is often due to an individual's concern over what others might think of them or how others might act toward them as a function of their product choice and usage (Bearden and Rose 1990). Individuals may tend to internalize the criteria employed by others, using those standards to justify their decisions to themselves (Schlenker 1980). Thus, even when there is no overt need to justify to others, an expected evaluation by others is likely to influence choice behavior (Simonson 1989).

Decision makers may also perceive a need to justify the decision to themselves (Hall and Lindzey 1970), or justify the decision in the anticipation of the possibility of regret (Bell 1982; Simonson 1992). In addition, individuals' perceptions of themselves as rational beings with reasons for preferring one option over others may require additional information search to confirm or justify the choice (Abelson and Levi 1985).

2.16 Summary

Formal models of decision making and choice, based on economic axioms of rational decision behavior, generally provide good predictive power. However, numerous studies which have focused on understanding decision

behavior have shown that the individual does not necessarily act in a strictly rational manner. The information processing approach to decision making emphasizes the individual constraints (limitations of mental and internal processes) to the decision problem. In addition, personal variables such as goals, emotions, feelings, and self-concept are considered to influence decision behavior.

Considerable research in social and cognitive psychology and in judgment and decision making indicates that the decision context plays a role in the initial framing of the problem or decision. Once an individual has formed an initial impression or hypothesis, alternative hypotheses are seldom considered and the information or evidence used to test the hypothesis will be selectively searched and evaluated. These findings suggest that individuals tend not to be impartial information processors. Thus, to better understand the choice behavior of the consumer, there is a need to look beyond the strictly "rational" decision models.

CHAPTER THREE

Rationalization of Choice Model: Conceptual Framework

3.1 Introduction

This chapter presents the conceptual framework of the proposed rationalization of choice model. The model is based on the information processing paradigm and on the biased decision processes discussed in the previous chapter. The distinctions between rational choice models and the rationalization of choice model are highlighted.

3.2 Rationalization of Choice Model

Following the economic axiomatic theories of consumer behavior, marketing choice models have typically depicted the consumer as a rational processor of information whose objective is to select the best product or service possible while minimizing the effort expended. These rational choice models assume that the choice decision is the output of an unbiased information search and an unbiased evaluation of alternatives.

The proposed rationalization of choice model provides an alternate view of the decision process. The rationalization of choice model proposes that the determination of the selected alternative is not generally based on an impartial trade-off or weighting of attributes. Rather, the choice commitment occurs early in the decision process, triggered by a stimulus in the environment, and is followed by a biased information search and evaluation of alternatives aimed at confirming or justifying the selected alternative.

There are fundamental differences between the previous decision models and the rationalization of choice model. While both the expected utility and information processing approaches to decision behavior characterize the

decision as essentially a rational use of information, the rationalization of choice model proposes that little information is needed for the decision. Further, both the earlier decision approaches suggest that search and processing essentially end when the decision is made; whereas the rationalization of choice model posits substantial post-choice search and evaluation.

As outlined in the previous chapter, substantial research evidence indicates that actual decision behavior often deviates from the rational model (e.g. Kahneman, Slovic and Tversky 1982; Nisbett and Ross 1980; Slovic, Fischhoff and Lichtenstein 1977). "The story of behavioral decision theory has been the growing realization that [the theory] often does not describe the decision making process" (Fischhoff, Goitein and Shapira 1983, p. 185).

A perceptual approach in which consumers process information depending upon how the problem is perceived may be more descriptive of certain choice data than an explanation based upon a specific cost-benefit analysis (Bettman and Sujan 1987). Bettman and Sujan noted that their data suggested that "consumers use attributes that occur to them either based on accessibility of a goal from memory or environmental salience of particular goals" (p.152). Since many decisions are driven by consumers' desires to satisfy particular needs (Howard 1977), consideration of goal availability in the context of product-level choice is important. When a choice goal is available (i.e., the desire to satisfy a specific need), consumers tend not to follow a data-driven, bottom-up process but rather a goal-driven, top-down process (Park and Smith 1989). This top-down process assumes that decision criteria are developed directly from the goal. Therefore, product alternatives are examined against the goal in terms of their relevance to goal achievement, rather than directly compared to one another.

In the rationalization of choice model, the consumer is not viewed as a dispassionate information processor, trading off attributes to determine choice, as portrayed by the bottom-up, data-driven rational choice models (Hoch and Loewenstein 1991, Bettman 1979). Rather, the consumer is viewed as using a combination top-down and bottom-up approach in choosing and justifying the committed alternative. The determination of the choice commitment is triggered by activation of a memory cue by a stimulus in the environment and based on limited information search. Any additional external information search and evaluation of alternatives is directed toward confirming or justifying the choice.

3.3 Rationalization of Choice Model and the Information Processing Paradigm

The rationalization of choice model extends the information processing paradigm. The model not only takes into account the cognitive limitations, internal processes, and learning of the decision maker, but suggests that due to these cognitive processes, the individual is a biased information perceiver, retriever, and processor. Thus, the individual selectively attends, perceives, and processes information in making a decision. This biased nature of decision making is, in part, due to individual and situational differences (Ross and Nisbett 1991) and is a reflection of how individuals make sense of their environment. In addition, the rationalization of choice model posits that information search does not end when the choice commitment has been made, but information search continues until the choice is announced. This information search is directed toward confirming the choice commitment.

3.4 Rational Choice versus Rationalization of Choice

A rational choice model typically found in most consumer behavior texts (e.g. Mowen 1987) is depicted in Figure 3-1. A consumer becomes aware of a

need for a product when the difference between an actual state and a desired state is recognized and is greater than a threshold value. Information search follows the identification of the need. The amount of internal and external information search undertaken by the consumer depends upon numerous factors such as the complexity of the decision, experience, knowledge (Brucks 1985, Bettman and Park 1980), and level of involvement of the consumer, the risk involved in the decision and various situational constraints (Payne, Bettman and Johnson, 1988). Evaluation of alternatives follows information search. "When the brands are compared, the consumer forms beliefs, attitudes, and intentions about the brands under consideration. Thus, alternative evaluation and developing beliefs, attitudes, and intentions are synonymous" (Mowen 1987, p. 43). The consumer then uses one or more decision rules or heuristics to determine which alternative will provide the greatest utility. Post-purchase evaluation such as a comparison of actual to expected product performance follows the choice decision.

--- Insert Figures 3-1 and 3-2 About Here ---

The proposed rationalization of choice model is depicted in Figure 3-2. A stimulus such as an advertisement, an in-store display or a word of mouth recommendation triggers a cue. This memory cue activates both the awareness of a need and limited internal information search. The consumer makes a choice commitment at this time but does not make the actual purchase or announcement of the choice. Following the choice commitment, the consumer undertakes sufficient external information search to confirm or justify the choice and the evidence gathered is evaluated relative to the choice commitment. Thus both the external information search and evaluation of information are biased. For example, a consumer sees an advertisement in a local newspaper for a

Sony CD Walkman, recognizes a need for a portable CD player, remembers that Sony is a brand in his consideration set, and decides to buy the product. Before making the purchase, however, the individual scans the newspaper for other advertised CD players and examines other alternatives at the store, comparing these alternatives to the Sony (e.g., price, features, sound quality). After gathering enough information to confirm the choice, the consumer purchases the Sony CD player. (Post purchase evaluation and cognitive dissonance in terms of the rationalization of choice model are discussed in a later section of this chapter.)

In both the rational decision model and the rationalization of choice model, individuals may have past experience or knowledge about a particular brand, product, or product category. Consideration sets may have been formed for which a number of brands meet consideration criteria. This past experience implies a relative amount of knowledge, and therefore utility. The rationalization of choice model proposes that the choice commitment is formed on the basis of this knowledge and experience whereas the rational model assumes no priors in the evaluation of information and the determination of attribute weights.

3.5 Distinctions Between Rational Choice and Rationalization of Choice

There are three primary distinctions between rational choice and rationalization of choice.

The first distinction pertains to the timing of the choice commitment or decision. Rational choice models assume that the choice occurs late in the decision process as the outcome of information search and evaluation. The rationalization of choice model proposes that the choice commitment generally occurs early in the decision process, triggered by a particular stimulus, and that the announcement of the commitment comes later, after information search and

evaluation.

The second distinction pertains to the pattern of information search. Rational choice models assume that information search is unbiased and is based on gaining sufficient information to evaluate the alternatives. The rationalization of choice model proposes that information search is a biased process which is based on gaining information to confirm or justify the choice commitment.

The third distinction pertains to the evaluation of alternatives; especially attribute perceptions and weights. Rational choice models assume an unbiased evaluation of alternatives with the determination of attribute importance and value being independent of the alternative. Overall evaluation depends upon the decision rule used to combine attribute information. The rationalization of choice model proposes that the evaluation of alternatives is a biased process, and that the determination of attribute importance is dependent on the choice commitment. Specifically, attributes which describe the choice commitment favorably will be weighted more whereas disconfirming attributes will be discounted. For the alternatives other than the choice commitment, the opposite will be true: confirming attributes will be discounted and disconfirming attributes be overweighted.

3.6 The Choice Commitment Occurs Early

Proposition 1:

The choice commitment occurs early in the decision process.

The rationalization of choice model makes a distinction between the choice commitment and the announcement of the choice decision. The choice

commitment is unobservable. However, it is proposed that the choice commitment generally occurs early in the decision process, triggered by a stimulus, and is followed by information search and processing. The choice announcement is the final stage.

The determination of the choice commitment can be described as the generation of a working hypothesis with the subsequent information search and evaluation as the testing of the hypothesis or the explanation used to support the hypothesis.

In rational choice models, the decision is the output of alternative evaluation and thus, the decision is the output of the development of beliefs, attitudes and intentions about the brands under consideration. In the rationalization of choice model, the choice commitment is similar to the behavioral intention of the rational choice model. Therefore, the choice commitment results from the formation of beliefs and attitudes. This process may rely very heavily on information in memory such as a growing commitment or partiality to an alternative over time, it may rely little on memory with the decision being driven by feelings, emotions or social influences or it may be based on some combination of these two extremes. The evaluation process would be more likely to reflect a global evaluation of the brand triggered by the stimulus in terms of meeting an activated goal or need, and less likely to be a comparison of attributes across alternatives unless attribute-based information is stored in memory and is readily accessible for comparison purposes.

In most examinations of an individual's decision process, the timing of the decision is never questioned. It is simply assumed that the choice decision is the output of search and evaluation.

Rational choice models assume that the choice decision is made at the

end of an information search and evaluation process (e.g. Bettman 1979). It could be argued that identifying the decision as an output of information search and evaluation is supported by the use of introspection methods such as protocol analysis (Newell and Simon 1972), in which individuals are asked to "think out loud" while going through a decision process, and retrospection, in which individuals are asked to describe their decision process for a decision that occurred previously. However, both methods have been criticized in the literature. Nisbett and Wilson (1977) argued against retrospection, claiming that there is no direct access to cognitive processes at all; instead, there is access only to the ideas and inferences that are the outputs resulting from such processes. Introspection has been criticized because its intrusive nature may interfere with the cognitive processes during the decision (Abelson and Levi 1985).

3.7 The Choice Commitment is Triggered by a Stimulus

Proposition 2:

A stimulus triggers the choice commitment.

Any of a number of stimuli may trigger the choice commitment. The stimulus may be visual, auditory, tactile or olfactory. For example, the aroma of freshly baked cinnamon buns, the smell of a neighbor's new car, the feel of a cashmere sweater, or the picture of a family enjoying a Disneyland vacation may trigger a choice commitment and ultimate purchase. The stimulus may provide sufficient information (such as attribute values) to make a choice commitment, and/or the stimulus may activate an internal information search, resulting in a memory-based choice (Lynch, Marmorstein and Weigold 1988). For example, a

brochure advertising a holiday in Disneyland which includes prices, hotel accommodations and departure dates may activate the desire for a vacation and the choice commitment of Disneyland without any additional internal information search. As another example, the Disneyland brochure may activate the desire for a vacation, the consumer may then recall from memory that the price of the Disneyland vacation is affordable and that the departure dates are appropriate. In this case, the choice commitment is triggered by the stimulus and decided after limited internal information search.

The stimulus could be considered a priming device which activates the awareness of a need and information processing. A considerable amount of marketing literature discusses the variety of stimuli such as advertising, point of purchase displays, coupons, and so on (e.g. Mitchell 1983, Rook 1987), that are used to encourage choice. Some of the literature looks at the stimuli as encouraging an impulsive response on the part of the consumer (Rook 1987). Other literature examines how the stimuli might change the consumer's attitude toward a product and may persuade the consumer to make a purchase decision (Petty, Cacioppo and Schumann 1983).

The rationalization of choice model makes a more direct link between the stimuli and the choice. In particular, it is suggested that the stimulus is the trigger which generates a working hypothesis (the choice commitment). While this may appear to suggest an impulsive response on the part of the consumer, in cases of impulsive behavior, a rationalization process does not follow the choice commitment. The particular contribution of the rationalization of choice model is the suggestion that the majority of purchases will involve some evidence gathering and evaluation to reassure the consumer that the choice triggered by the stimulus is appropriate (i.e. satisfices or maximizes utility).

Many stimuli are under the direct control of the manufacturer, distributor, or retailer. These stimuli range from the output of promotional and advertising activities such as coupons, in-store displays, free samples, product trial, or the recommendations of salespeople, to specific product features such as styling or color. The rationalization of choice model suggests the underlying decision processes account for the effectiveness of these stimuli in encouraging choice. For example, the consumer who receives and samples a free trial package of a breakfast cereal, may respond to the stimulus by purchasing the brand after a comparison of the attributes of similar products to the sampled product (e.g. price, sugar content, nutrients) at the supermarket.

Other stimuli, such as the recommendations of others (e.g. a spouse, friends, or peers), are more personal in nature. It has long been recognized that friends and reference groups provide information that influences consumer decision making (Rosen and Olshavsky 1987). Consumers may depend upon information obtained from some other person, rather than obtaining the information for themselves. This information can take the form of the values of particular attributes or features of the product (e.g. price) or can be in the form of a recommendation in which a specific alternative is designated as being "best" (Rosen and Olshavsky 1987). In this case, the rationalization of choice model suggests that the choice commitment would be based upon the recommendation of another and would be followed by information search and evaluation to confirm the decision.

Another stimulus that may trigger a choice commitment is the anticipation of regret if a purchase is not made (Simonson 1992; Bell 1982). A sale or specific price offering may encourage a consumer to consider the purchase of a particular product. If a choice commitment is made, this commitment may be

accompanied by the concern of missing out on a purchase opportunity (Simonson 1992).

3.8 The Consumer Attends to the Stimulus

Proposition 3:

For a stimulus to trigger a choice commitment, the stimulus must be attended to and elaborated on by the consumer.

Within the assumptions of the rationalization of choice model it is recognized that information stored in memory plays a fundamental role in the response to the stimulus. The stimulus may activate cues in memory, such as needs or goals; it may appeal to the emotions; it may project an expression of self-esteem or the impression one hopes to make on others.

Many factors can influence what stimulus is attended to, if the stimulus is encoded, and how it is encoded. A number of factors can be identified that direct attention more to some features of a stimulus than to others (for a review see Taylor and Fiske 1978), but it is generally agreed that attention is directed to those attributes that are salient -- attributes that are unusual, dramatic, or distinctive, or that are highlighted in some way (e.g. visually). Research in both marketing and psychology has shown that vivid information can influence an individual's judgment when the individual is encouraged to elaborate on the material presented (McGill and Anand 1989; Nisbett and Ross 1980). Information is defined as vivid if it is emotionally interesting, imagery-provoking or proximate in a sensory, temporal, or spatial way (Nisbett and Ross 1980).

The level of processing involvement by the individual also plays a role in the effectiveness of the stimulus to encourage encoding (Petty, Cacioppo and

Schumann 1983). When nonrelevant messages are processed under conditions of low involvement, factors peripheral to a brand's benefits (e.g. spokesperson likability) provide a significant influence on brand evaluations (Greenwald and Leavitt 1984; Petty, Cacioppo, and Schumann 1983).

3.9 Limited Initial Information Search

As proposed by the rationalization of choice model, the consumer attends to a stimulus, elaborates on the stimulus by drawing on information from memory, evaluates both the information from the stimulus and the information from memory, and makes an initial choice commitment. Little or no external information search is required to form the choice commitment.

The use of information in making a decision could be considered a continuum in which some decisions are based entirely on experience or memory, whereas at the other extreme, some choices are based on exploring the environment (Selnes and Troye 1989). At one end of the continuum, are pure attribute-based judgments. The past work on conjunctive, disjunctive, and lexicographic rules and on cognitive heuristics is relevant to attribute-based judgments (Lynch and Srull 1982). At the other end of the continuum are those judgments that are purely memory-based, in which none of the relevant information is readily available outside of memory. Perhaps even more frequent are those decisions which fall between the end-points, in which some information is present but other relevant information is stored in memory. Thus, in many choices, the consumer must remember some or all of the attributes or alternatives (Lynch, Marmorstein and Weigold 1988).

The limited initial information search and evaluation proposed in the rationalization of choice model is consistent with the information processing paradigm and the adaptive nature of the individual when faced with internal,

external, or situational constraints (e.g. Payne, Bettman and Johnson 1988). For example, Park and Smith (1989) noted that product-level choice is consistent with the contingency processing perspective, which holds that consumers often adapt their problem-solving strategies to the demands of specific decision-making tasks and contexts (Payne 1982; Payne, Bettman and Johnson 1988). Extending the contingency processing perspective to the rationalization of choice model, information from memory and the stimulus will often be sufficient for a consumer to commit to a choice. In addition, it has been argued that many decisions, even important ones, are determined "intuitively" and automatically, without recourse to weighting attributes and evaluating alternatives (Mitchell and Beach 1990).

3.10 Continued Information Search after Committing to a Choice

Proposition 4:

After the choice commitment is made, the individual searches for additional information to support or justify the choice.

Proposition 5:

The amount of external information search depends primarily upon the amount of search required to reach a comfort threshold with the choice. The threshold level depends upon the knowledge and experience of the individual; the amount of perceived risk of the purchase such as financial risk and social risk; and situational constraints such as time and availability of information.

The rationalization of choice model proposes that after the choice

commitment is made, but before it is announced, the consumer goes through an information search and evaluation process. This search and evaluation process is biased toward the choice commitment. Thus, limited information is used in determining the choice commitment and additional information is collected after commitment. In contrast, the rational choice models assume that all information is collected prior to determining a choice and that choice is based on the information gathered. In both models, information search may continue after the purchase has been made as a means to evaluate the decision post-purchase.

Literature dealing explicitly with the cost of information (e.g. Stigler 1960; Shugan 1980) suggests that all search ends after a decision has been made. However, other research (e.g. Festinger 1957) suggests that information search may continue after a decision has been made as a means to reduce dissonance resulting from the decision. (Additional information, however, would be avoided if it was thought to increase dissonance.) Thus, the benefit from search may not be inherently tied to the specific marginal benefit of a "better" product so much as to the required comfort threshold with the decision (Simonson, Huber and Payne 1988; Bhargava 1989). This comfort threshold level will depend upon numerous factors such as the knowledge and experience of the consumer (Brucks 1985), the amount of perceived risk of the purchase (Kahneman and Tversky 1979), and the individual's certainty associated with prior beliefs about the product (Simonson, Huber and Payne 1988). Situational constraints such as time and availability of information may also affect the amount of external information search as a consumer may tradeoff effort for comfort (Payne 1982).

An external information search is generally conducted by a consumer, but this search will tend to be limited (Duncan and Olshavsky 1982) and, as discussed in the previous chapter, will generally consist of an examination of

hypothesis-consistent information (Snyder and Swann 1978b; Simonson, Huber and Payne 1988). Thus, consumers tend to avoid situations in which they might receive unfavorable feedback about chosen alternatives and favorable feedback about rejected alternatives (Frey and Rosch 1984).

3.11 Biased Information Evaluation

Proposition 6:

Interpretation of information depends upon the initial choice commitment and upon the nature of the information searched.

Proposition 7:

Attribute importance depends upon the choice commitment:

a. choice commitment: positive attributes will be given greater weight; negative attributes will be discounted

b. other alternatives: positive attributes will be discounted; negative attributes will be given greater weight.

The rationalization of choice model proposes not only that information search will continue after the choice commitment is made, but that this information search and evaluation will be biased toward the choice commitment. It is suggested, contrary to rational choice models in which attribute valuation is considered to be independent of the alternative, that attribute valuation is dependent upon the choice commitment. In particular, the positive attributes of the choice commitment will receive greater weight whereas negative attributes will be discounted. However, for all other alternatives, positive attributes will be discounted and negative attributes will be overweighted.

The quote by Bacon (1620/1960, p. 50), presented at the beginning of the dissertation, is relevant to this discussion. Once an individual has adopted an opinion or belief, the tendency is to search for information and evidence to support and confirm that belief and to interpret the information as confirming.

As discussed in the previous chapter, substantial literature in social psychology has demonstrated the rigidity of beliefs and opinions (e.g. Ross et al 1975; Skov and Sherman 1986). In terms of using new information to update theories, individuals tend not to believe evidence that opposes some theory they hold; if the evidence cannot be entirely discredited, it will be given little weight and treated as if it were of little importance (Nisbett and Ross 1980). Thus, the evaluation of a chosen alternative has been shown to be less than impartial due to the propensity for a biased information search (Fischhoff and Beyth-Marom 1983; Snyder and Swann 1978b). This suggests that once a consumer has committed to a choice, any further information search and evaluation of new evidence will be biased toward the choice commitment.

3.12 Justification of the Choice

Proposition 8:

The amount of external information search will increase if the individual anticipates having to justify the choice to others such as a superior, spouse or peer.

The rationalization of choice model proposes that if the consumer seeks additional information after a choice commitment has been made, this evidence will be directed toward rationalizing or justifying the choice. As discussed, this justification process may have something to do with the comfort level of the

individual (e.g. Bhargava 1989) or the need to justify the decision to others (e.g. Gibbins 1984; Simonson 1989). If the individual anticipates having to justify the decision outcome or the decision process to others, it is proposed that the amount of external information search will increase. Specifically, biased search will increase to obtain reasons for the decision.

3.13 Limiting Conditions of the Rationalization Process

Proposition 9:

If an individual anticipates having to justify the decision process used to others such as a spouse, superior or peers, a rational decision process will be used.

Proposition 10:

In decisions involving high financial or social risk, the amount of perceived risk involved in the decision and the individual's risk tolerance (e.g. risk averse or risk neutral), will interact to determine whether the individual will use a rational or rationalization decision process.

Proposition 11:

In decisions for which the individual has low knowledge and/or experience, the type of decision (e.g. complex or low involvement) and the personal characteristics of the individual (e.g. risk averse or risk neutral), will interact to determine whether the individual will use a rational or rationalization decision process.

Having argued for the occurrence of an early choice commitment,

followed by information search and evaluation, it is also recognized that there are instances when the choice commitment may not be made early in the decision process. These instances may be considered boundary or limiting conditions of the rationalization process. For example, the choice commitment may not occur early in the decision process if the decision is considered to be risky (a high financial or social risk), if the individual has a lack of knowledge or experience in the decision area, or if the individual is accountable to others for the decision. In these circumstances, the individual may be more likely to search externally for information and objectively evaluate the alternatives. These are examples of when an individual may be more likely to follow the traditional rational decision process. However, there is likely to be an interaction between the personal characteristics of the individual (e.g. risk averse or risk neutral), and the decision (i.e. risky vs. low risk), in the determination of the type of decision process used for the former two cases listed above. For example, in a decision involving a considerable financial risk, a risk averse individual may be more likely to use a rational decision process whereas a risk neutral individual may be more likely to use a rationalization process.

3.14 Change in the Choice Commitment

Proposition 12:

Information that disconfirms the choice commitment may result in a change to the choice commitment depending upon:

a. the strength of commitment in the initial choice,

b. the amount and strength of disconfirming evidence relative to confirming evidence,

c. the credibility of the source of disconfirming evidence, relative to

confirming evidence.

There may be occasions when the choice commitment is changed and is, therefore, different from the choice announcement. This may be the case if the individual is encouraged to explicitly consider why another alternative might be a better choice (Koehler 1991) or if the initial strength of belief or commitment in the initial choice is not strong. For example, individuals with strong beliefs are unlikely to change those beliefs when provided with disconfirming evidence (Lord et al. 1979). However, individuals who are not strongly attached to a choice, may be more likely to be influenced by disconfirming evidence. The ability of the disconfirming information to change a choice commitment will also depend upon the amount and strength of the evidence and the credibility of the source of the evidence.

3.15 Rationalization of Choice Model: Discussion and Summary

The rationalization of choice model provides an alternate view of the decision process. This chapter has presented the conceptual framework of the rationalization of choice model and has compared the proposed model to rational decision models. The fundamental differences between the rationalization of choice model and rational decision models have been highlighted: the timing of the choice commitment or decision, the timing of information search, and the type and evaluation of the external information searched. The proposed model considers only those decision stages from the stimulus to the actual purchase. Before the onset of the stimulus that triggers the choice of a particular product, the consumer may have previously purchased the product, may have actively acquired specific or general information about the product class or may have acquired information over time. This learning and

evaluation before the onset of the stimulus may be objective in nature (as assumed in the rational choice models) or may be biased (see Hoch and Deighton 1989).

The proposed rationalization of choice model integrates several streams of research, notably those dealing with biased decision processes and justification of the decision. Each of these areas, in isolation, cannot explain the rationalization process that a consumer may go through before announcing a choice.

It may be argued that the rationalization process is nothing more than a method for reducing the cost of decision making. A cost-of-thinking argument (e.g. Shugan 1980) suggests that consumers will use a decision process that minimizes or reduces the amount of effort expended in making a choice. The cost or effort of making a decision is incorporated within the rationalization of choice model which is based on the information processing paradigm. However, the proposed model suggests that individuals will continue to search after a choice has been made and that this continued search is based on the need to justify the decision to oneself or to others. Thus, information search does not stop once the decision has been made, as suggested by a cost-of-thinking argument.

The literature on hypothesis testing, confirmatory bias, and updating of beliefs documents the propensity of individuals to generate a single hypothesis, seek information that is consistent with the hypothesis, and assimilate evidence so as to maintain the initial hypothesis. This research explains the biased nature of an individual's decision process, but does not examine or explain why an individual might continue to search for supporting evidence after a decision has been made. The rationalization of choice model proposes that the continued

search is based on justifying the choice.

The justification process proposed by the rationalization of choice model cannot be fully explained within the cognitive dissonance literature (e.g. Festinger 1957). According to the early version of cognitive dissonance, all decisions are followed by dissonance to a certain degree (Festinger 1957). However, Frey and Rosch (1984) noted that several studies indicate that "the process of dissonance-reduction isn't initiated if the choice is not final" (p.92). Thus, the justification of the choice and further information search proposed by the rationalization of choice model is not motivated by a need to reduce dissonance, nor is there dissonance with the choice commitment because the choice is not final. The choice commitment is a working hypothesis which is explained or tested by the additional information searched.

An argument could be made that during the external information search, the occurrence of disconfirming evidence may encourage a dissonance reaction. For example, if it becomes apparent that two or more alternatives are very close in overall appeal or expected utility, the individual may continue to search for additional information or adjust existing cognitions by changing perceptions or shifting importance weights to reduce the dissonance. The result will be either a change in the choice commitment (followed by additional information search to justify that commitment) or a decision to purchase the initial choice commitment (see Figure 3-2). Thus, dissonance may follow as a result of information search to confirm the initial choice commitment, but the confirmatory search is not the result of dissonance.

The stimulus that triggers the choice commitment does not generally result in the explicit comparison of two or more alternatives (i.e., the trading-off of attributes to form an overall evaluation and determination of the alternative

with the maximized utility). Therefore, neither reactance theory nor the components of cognitive dissonance dealing with dissonance occurring when a choice is made between two alternatives, are appropriate applications of the pre-announcement information search and evaluation.

The conceptual framework for the rationalization of choice model has been outlined and discussed in this chapter. The proposed model builds upon the information processing paradigm and incorporates research on the biased decision processes of individuals. The proposed model, however, goes beyond these research areas to gain a better understanding of consumer choice behavior. An experimental approach (outlined in Chapter 4) will be used to test the main propositions of the rationalization of choice model presented in this chapter. The hypotheses that will be tested are discussed in Chapter 5.

CHAPTER FOUR

Experimental Method

4.1 Introduction

This chapter outlines and discusses an experiment designed to test the main propositions of the rationalization of choice model. The hypotheses tested are discussed in Chapter 5. The experiment tests for the type of information search (biased or unbiased search), the use of a stimulus to trigger choice, the early commitment to a choice and any change in choice between commitment and announcement. In addition to testing for the general use of a rationalization process, the experiment is designed to test two possible boundary conditions of the rationalization of choice model: one case in which the rationalization process is more likely to be used (justification of the decision outcome), and one case in which the rationalization process is less likely to be used and a rational process is more likely to be used (justification of the decision process). Failure to find support for a rationalization process (information search, justification, and retaining the choice commitment) when it is expected would result in falsification of the proposed model.

The computer-based experiment consisted of five sections: a product preference survey, evaluation of advertisements, two product choices, elaboration of the reasons for the choices made, and manipulation checks. The product choice section consisted of two choice situations: one situation in which subjects have both prior knowledge and prior preferences about a particular product (the "familiar" product), and another situation involving a "novel" product for which subjects have only general interest or knowledge.

Due to the complexity of the experiment and the manipulations, several

pretests were required. The tests conducted to pretest the experimental manipulations are discussed in Chapter 6.

4.2 Experimental Design

Three factors of the rationalization of choice model - justification, trigger stimulus and the timing of choice - were examined in a computer-based full factorial between subjects experiment. The manipulation included three levels of stimulus (trigger choice of Brand A, trigger choice of Brand B, and no triggered choice control), three levels of justification (justification of decision outcome, justification of decision process, and a no justification control) and two levels of timing of the choice (choice commitment with announcement, and choice announcement only--control).

4.3 Experimental Procedure

The experiment consisted of five parts, followed by debriefing (Figure 4-1) and was completed by subjects entirely on a computer in a computer lab. Thus, subjects were able to work through the experiment at their own pace. In addition, data was automatically stored to disk at the conclusion of the experiment which was unobtrusive for subjects as well as an aid to data analysis by eliminating data entry and coding errors. Each of the five sections of the experiment will be discussed below. All of the computer screens viewed by the subjects have been reproduced in the Appendix.

--- Insert Figure 4-1 About Here ---

4.3.1 Section One - Prior Preferences

In the first section, subjects were asked to complete a survey to determine prior preferences in four product categories, including that of the familiar product. The product categories used in the experiment were portable CD players, portable stereos, VCRs, and televisions (see Chapter 6 for a discussion of the

determination of these product categories). The survey presented product profiles (brand name, features, and price) and subjects were asked to allocate 100 preference points to the brands in each category. Five brands per category were examined. Subjects were also asked product usage questions such as whether they owned a product in each of the four product categories, the brand name of that product and the number of times per week they used the product.

The purpose of this part of the experiment was to determine brand preferences for the familiar product and to activate a cue in memory of the desire for a particular product, before the presentation of advertisements in the next section. It was desired that the activation of a memory cue would encourage the subject to attend to the appropriate trigger stimulus in the next section.

The order of presentation was identical across subjects. There were a total of 11 screens in this task. The first three screens provided instructions for this task, followed by two screens for each product category. After the instruction screens, the next screen showed five brand profiles for one product category and the subject was asked to indicate his preference for each of the five brands in the product category. The following screen asked product usage questions for the product category just viewed. The screens continued in this manner until all four product categories had been dealt with. The "familiar" product was shown third.

From this part of the experiment, the prior preference of a brand from the "familiar" product category was determined as that brand which received the greatest number of preference points. If there was a tie among two or more brands, the subject was concluded to be undecided.

4.3.2 Section Two - Trigger Stimulus (Advertisements)

In the second section of the experiment, subjects were asked to evaluate

eight advertisements, four ads from the "familiar" product category and four ads from the "novel" product category. A different brand was shown in each ad. Thus, subjects saw ads for a total of 8 different brands. Order of ads was randomized to remove any order effects of attending to the stimulus and to remove any learning effects in completing the evaluation after the ad was presented. After each ad was presented, it was removed and subjects were asked to recall the product shown in the ad, to recall the brand name, to write down their thoughts concerning the expected effectiveness of the ad and to rate the overall effectiveness of the ad on a seven point Likert scale. Subjects could spend as little time or as much time as they chose looking at an ad before going on to the question screen for that ad.

The manipulation of the trigger stimulus occurred in this part of the experiment. In a real-world situation, the stimulus would trigger a cue in memory (a goal or a need) and the consumer would act upon the stimulus by attending to the information from the stimulus. The evaluation of the advertisements was done to increase the subject's involvement in the advertising information as well as to examine the subject's expression of confirming and disconfirming information. It was hoped that subjects would elaborate substantially on each ad and thus provide a measure of arguments both for and against each ad. It was expected that subjects would be more likely to counterargue ads that disconfirm their prior preferences; and would be more likely to mention confirming arguments rather than disconfirming arguments. However, it became apparent during pretests that subjects were less than verbose in the written evaluation of the advertisements (see manipulation pretest experiments in Chapter 6). The number of questions asking for a written response from subjects was reduced from three to one from the manipulation pretest to the main experiment with the

hope of increasing the number of written arguments provided by subjects. In addition, subjects were specifically asked to comment on both the positive and negative features of the ad. However, subjects in the main experiment also provided only limited written comments about each ad. Thus, the only measure taken from this part of the experiment was a rating of the subject's written evaluation of the advertisements indicating the positiveness or negativeness of the evaluation. The rating was coded on a five point scale (1=positive, 5=negative) by an independent investigator who was unaware of the experimental manipulation. A subset of the results was examined by a second independent investigator who was also unaware of the experimental manipulation. Using the generalizability coefficient to assess intercoder reliability (Hughes and Garrett 1990; Rentz 1987), a coefficient of .78 indicates that there is good reliability in the coding of the measures between judges.

4.3.3 Section Three - Justification, Information Search, Choice and Confidence Measures

This section of the experiment involved the justification manipulation, information search, choice from an information display board and confidence measures. To manipulate justification of the decision outcome, subjects were told in the instructions to this section that they would be asked at a later point in the experiment to supply reasons for the choice that they made (e.g. "If you were to explain your choice to a friend, a spouse, or a boss, what reasons would you give for making your choice?"). Instructions were similar for the justification of the decision process manipulation. Subjects were told that they would be asked to describe what they were thinking about and their strategy when making their choice (e.g., "If you were asked to describe your decision process to a friend, a spouse or a boss, what strategy did you use in determining your choice?"). In

the justification control condition, subjects were told in the instructions that they would be shown some alternatives in two product categories and would be asked to make a choice.

The distinction between justification of the outcome and justification of the process is very subtle to most individuals. However, both justification manipulations were pretested to check the wording of the manipulations to best encourage the appropriate justification process. In addition, a check of the manipulation was carried out in part four of the experiment.

This section involved the use of an information display board, similar to Mouselab (Johnson, et al. 1988). Subjects were asked to choose one alternative from among four alternatives which were described on seven attributes. The information was displayed in matrix format with the attribute values hidden. The values of the attributes could be displayed by clicking (using the mouse) on a particular attribute box and holding the mouse button down. The attribute value was hidden once the mouse button was released. Information was not displayed instantly. Rather, a very slight time delay was incurred by the subjects from the point of clicking on the attribute box to the display of the attribute value. This time delay was used to simulate a cost for each piece of information (Shugan 1980). Subjects were informed during the general computer usage instructions, that the computer may be slow to respond at certain points in the experiment due to the number of individuals accessing the computer network at any one point in time. This explanation was not technically correct as the Toolbook program ran locally on the computer. However, a number of the advertisement screens took substantially more time to refresh than others due to the picture graphics used, so this explanation was used as the most comprehensive to the subjects.

Subjects went through the information display board task three times. The first time was used as a practice for this task and asked subjects to make a choice from three university faculties. Attributes examined included the ability of graduates to get a job in the field for which they had trained, the percentage of students admitted to the faculty, and the quality of teaching. The second and third times through this task, subjects were asked to make a brand choice, first from the "familiar" product category and then from the "novel" product category. Thus, when subjects reached the practice choice task, they were able to uncover as much or as little attribute information as desired, and then were asked to make a choice among the three alternatives before leaving the practice choice screen. Subjects were then shown the screen for the "familiar" product alternatives and went through a similar search process. Again, subjects could not leave the screen until a choice had been made. Finally, subjects were shown the screen for the "novel" product alternatives and the same process was repeated.

Those subjects in the choice commitment with announcement condition of the timing of the choice manipulation were asked to make a choice from among the product alternatives **before** viewing the product information and again **after** viewing the product information whereas those in the choice announcement control condition were asked for their decision only after viewing the product information.

In addition to examining choice behavior, the information display board task allowed the inspection of a subject's search behavior. Subjects were expected to search for information that would confirm prior preferences, but the confirmatory search would be mediated by the justification condition.

After a choice was made, subjects were asked to rate their confidence in

their choice on a seven-point Likert scale. It was expected that subjects with prior preferences would have more confidence in their choice selection than those without prior preferences.

The dependent measures from this section of the experiment are confidence ratings, choice outcome (choice commitment and choice announcement), amount of search and amount of confirmatory search.

4.3.4 Section Four - Justification Manipulation Check

In the fourth task, all subjects were asked for their reasons for their choice as well as their strategy in making their choice (both justification manipulations) for each of the two product profile choice decisions from part three. Thus, four choice justifications were provided by each subject. This task has been included for two reasons. First, subjects in the two justification manipulation conditions were expecting to respond to one of these questions. Second, the responses serve as a check for the justification manipulations. In particular, there should be a difference in the responses for the two questions, with more attribute evaluation (tradeoffs and weighting) for the justification of the decision process, and more alternative-specific information for the justification of the decision outcome.

The four justification measures from part four were coded on a five point scale (1=alternative-based global evaluation, 5=attribute-based comparison across alternatives) by an independent investigator who was unaware of the experimental manipulation. Results from a subset of the subjects were analyzed by a second independent investigator who was also unaware of the experimental manipulation to assess intercoder reliability of the justification measures. Using the generalizability coefficient to assess intercoder reliability (Hughes and Garrett 1990; Rentz 1987), a coefficient of .732 indicates that there is good

reliability in the coding of the measures between judges.

4.3.5 Section Five - Experimental Manipulation Checks

The last section of the experiment consisted of manipulation checks to determine whether subjects went through a similar mental process and/or justification process when making decisions similar to the ones presented in the experiment. The degree of difficulty in completing the experimental task was also examined. This series of six questions asked subjects for a response on seven-point Likert scales.

Subjects were thoroughly debriefed at the end of the experiment using a standardized debriefing script.

4.4. Subjects

The subjects were undergraduate students taking business and introductory psychology courses. Because of the use of student subjects, the products used in the experiment were chosen for their relevance to the student population.

4.5 Product and Prior Preferences

The product categories used in the prior preference section of the experiment were examined in pretests to determine if student subjects had a general familiarity level with these product categories. The products included: television sets, portable stereos, portable CD players, and VCRs. The novel product was an electronic tutor (a computerized teaching aid for university students with modules in a variety of subjects areas such as calculus, accounting, and economics).

For the first choice task in the experiment, it was desired that subjects have both prior knowledge and prior preferences for a particular product category, the "familiar" product. Differences of opinion were desirable to allow

for the testing of the trigger stimulus. Thus, it was important in the product category chosen for the familiar product choice task that no one brand totally dominate the product category. The product category which best met these criteria was VCRs (see the manipulation pretest experiments discussed in Chapter 6).

For the second choice task, a novel product was used in which subjects only have general knowledge so that effects of experimental manipulations may be observed in the absence of prior preferences. Thus, the effect of a stimulus to trigger choice, the maintenance of the choice commitment, and the confirmatory search process could be tested in the absence of prior preferences, specific knowledge of the product and experience with the product. This is a much stronger test of the rationalization of choice model. The one criterion that was determined to be of importance for the novel product was that student subjects have an interest in or a desire to learn more about the novel product. This was determined in the manipulation pretest experiments (see Chapter 6).

Prior preferences are included in the experiment for two reasons. First, the rationalization of choice model would predict that individuals with strong prior preferences will maintain that preference and choose that product whether they have received a stimulus for that product (the stimulus would trigger the need for that product); whether they have received a stimulus for another product (the stimulus would activate a link to the preferred product in memory) or whether no stimulus has been received but the individuals are asked to make a choice (the need to make a choice would activate the preferred product in memory). Second, the perseverance of strong prior beliefs has been observed and tested in other studies (e.g., Ross et al. 1975).

It would be expected that the rationalization process would be more likely

to be observed with a familiar product for which individuals have a knowledge base and may have already formed an evaluation of the products available in the marketplace. It is less likely that the rationalization process would be observed when individuals have a limited or no knowledge base. Thus, the inclusion of a novel product will provide a stronger test of the rationalization of choice model. If it can be shown that choice for a novel product can be triggered by a stimulus, that individuals who commit early to a particular novel choice, maintain that choice, and that the information search process is biased then this suggests that the rationalization process has a broad application to decision choice processes for both new and familiar products.

4.6 Trigger Stimulus

Print advertisements were used as the stimuli to trigger choice. Deighton (1984) noted that while the measured effect of advertising alone on purchase intention is often weak, the effect of advertising when allowed to interact with product evidence or experience is much stronger. In this experiment, subjects were asked to evaluate numerous advertisements using an open-ended question format to encourage elaboration of the information in the ads. In particular, subjects were asked to write down their thoughts concerning the content of the ad, including both negative and positive features of the ad. Due to the time required to complete this task, the advertisements evaluated were only for those products tested in the experiment. Thus, subjects were asked to evaluate a total of 8 advertisements, 4 brands in each product category.

In both choice tasks (familiar and novel product categories), the trigger stimulus conditions were the same. In the first condition, one ad presented particularly strong evidence for Brand A and the other ads were weaker; in the second condition, the strong ad was for Brand B and the other ads for that

product category were weaker; and in the third condition, all ads were approximately equal in effectiveness. The strength of effectiveness of the advertisements was determined by pretesting (Chapter 6).

4.7 Early Choice Commitment

Although the choice commitment is unobservable, it can be inferred in one way and measured (somewhat obtrusively) in another way. First, in the familiar product choice task, it is proposed that those subjects with a strong prior preference for a particular brand will make a choice commitment for that brand (this follows from the belief perseverance literature). Thus, the prior preference (from the prior preference task in the experiment) is inferred to be the choice commitment. Second, the early choice made by subjects in the choice commitment with announcement condition of the timing of the choice is considered to be the subject's choice commitment.

In both choice tasks, subjects were randomly assigned into one of two experimental conditions. In one condition, (the control condition), subjects were asked for their choice only at the end of information search. This is typically what is asked in any choice task. However, in the other condition, subjects were asked for a choice before information search began and again after information search was completed. Subjects in this condition were asked to make a choice before gathering any additional information and were told that they could change their mind about the choice after additional information had been gathered. This before search choice is assumed to be the choice commitment.

4.8 Pretesting

Because of the complexity of the experiment and the experimental manipulations, substantial pretesting was required. These tests included the determination of suitable products for student subjects (one product for which

there is the appropriate mix of prior preferences, and a novel product which was of interest to the subjects), the testing for differing effectiveness of advertisements, the examination of the appropriate wording for the justification manipulation, and testing the overall execution of the main experiment. The experiments completed as manipulation pretests are discussed in Chapter 6.

4.9 Summary

This chapter has presented and discussed an experiment to test the main propositions of the rationalization of choice model. A single experiment was chosen to test the model for two reasons. First, the three-way interactions will be used to test some of the hypotheses presented in Chapter 5. Second, although the experiment contains many cells and requires a large number of subjects, attempts to break the experimental design into smaller experiments resulted in a substantially larger number of subjects (in excess of 1400) required to test the hypotheses of interest. Thus, a single experiment, although somewhat complicated, allows for the most efficient testing of the interactions and effects of interest.

CHAPTER FIVE

Hypotheses

5.1 Introduction

An experimental investigation examined a subset of the propositions of the rationalization of choice model. This chapter presents the hypotheses tested and the expected results.

The following components of the proposed model were investigated: the amount of information search, the amount of confirmatory search bias, the choice commitment, and justification. Failure to find support for a rationalization process (information search, justification and retaining the choice commitment) would be sufficient to reject the rationalization of choice model. Examination of the rationalization process depends upon the ability to identify the choice commitment and confirmatory information.

5.2 Amount of Search (Total Number of Acquisitions)

The first issue studied by the experimental investigation is the amount of information examined, specifically, the total amount of information searched when it is anticipated that the choice must be justified.

The rationalization of choice model proposes that information search continues after the initial choice commitment has been made. In particular, it is suggested that the implicit or explicit need to justify the decision to oneself or to others affects search behavior. This is in contrast to the rational choice decision models which employ a cost/benefit approach to information acquisition, suggesting that information search will cease as soon as the choice has been determined. Previous research has suggested that even when there is no overt need to justify a decision to others, an expected evaluation by others is likely to

influence behavior (Simonson 1989, Gibbins 1984). Thus, if individuals expect to explain the reasons for their choice, the amount of information searched should increase. In addition, the information searched should increase whether individuals expect to justify the decision process they have gone through to determine choice or whether the individuals expect to justify the choice outcome of their decision. One may intuitively expect that total search would be greater for individuals who anticipate having to justify their decision process, that individuals would search all of the information at least once. However, it could also be argued that justification of the choice outcome could result in greater total search depending upon the amount of search required for the individual to reach a comfort level with the choice. This comfort level threshold is suggested to be individual-specific (Proposition 5). Thus, no prediction is made regarding which type of justification (or boundary condition) would result in greater search.

Hypothesis 1: Total acquisition of information is greater when the decision process must be justified than when the process does not have to be justified.

Hypothesis 2: Total acquisition of information is greater when the decision outcome must be justified than when the decision outcome does not have to be justified.

5.3 Amount of Confirmatory Bias

After the choice commitment has been made, the rationalization of choice model postulates that the individual continues to search for information. This information search is predicted to be a biased search. Thus, individuals will

search for information that will justify their choice commitment to achieve a comfort level with the choice or in anticipation of having to justify the choice to another. Previous research indicates that individuals are more likely to search for decision-consistent information (Snyder and Swann 1978b) and to suspend search before all information is examined, even when disconfirming evidence is presented (Shaklee and Fischhoff 1982). Therefore, it is expected that the amount of confirmatory search is greater for individuals who have made a choice commitment than for individuals who have not made a choice commitment.

Hypothesis 3: The amount of confirmatory search bias is greater when an individual has a strong prior preference (choice commitment).

It is further postulated that the amount of confirmatory search bias will differ depending upon the reason for the justification. For example, if an individual anticipates having to justify the decision outcome to others, it is suggested that information search to confirm the choice will increase and will be greater than the confirmatory search if the individual is looking to achieve a certain personal comfort level with the choice. The distinction in this case is the difference between the explicit need for justification and the implicit desire for justification. Thus, it would be expected that the amount of confirmatory search bias will be greater in the justification of the decision outcome than in the justification control condition.

If the individual anticipates having to justify the process that was used to determine a choice, however, search will tend not to be biased but will be more objective in nature. Thus, it would be expected that the amount of confirmatory search bias will be greater in the justification of the decision **outcome** condition

than in the justification of the decision **process** condition.

Hypothesis 4: The amount of confirmatory search bias is greater when the outcome must be justified than when the outcome does not have to be justified.

Hypothesis 5: Confirmatory search bias is reduced when the process must be justified, compared to no justification and outcome justification.

5.4 Choice Outcome

In cases when individuals anticipate having to justify their decision process, it is more likely that a rational decision process will be used. Individuals will be less likely to be influenced by a stimulus and will be more likely to approach the problem objectively. Conversely, if an individual does not expect to justify the decision process, the rationalization of choice model would be a better predictor of the decision process and the choice would be more likely to be triggered by a stimulus. Thus, if the subject has no strong prior preference for a brand, the stimulus will trigger a choice commitment; if the subject has a prior preference which is consistent with the stimulus, the stimulus will reinforce a choice commitment; however, if the subject's prior preference is different from the stimulus, the subject will maintain the initial preference (perseverance of belief). It is expected that there will be a significant effect of the trigger stimulus on the end choice.

Hypothesis 6: When the decision process does not need to be justified, individuals will choose the triggered alternative provided that the individual has no prior preference, or the individual's prior preference is consistent with the triggered alternative.

Individuals will choose the alternative that is perceived as the most justifiable (Simonson 1989). If the individual expects to justify his decision outcome the individual will be more likely to follow a rational decision process in which attribute importance will be considered, followed by an overall evaluation of alternatives. This will be true if there is no stimulus in the environment to promote a particular alternative and the subject has no prior preferences. However, if the subject has a prior preference for a particular alternative, he will be more likely to maintain his initial preference and choose that alternative.

Hypothesis 7: When individuals anticipate justifying the decision outcome, and no alternative has been triggered, individuals will choose the alternative for which they have a prior preference.

5.5 Change in Preference

One of the main propositions of the rationalization of choice model suggests that an individual makes an early choice commitment and once that choice commitment is made, information search and evaluation is biased toward the choice commitment. Thus, the choice commitment becomes the announced choice. This hypothesis reflects the perseverance of initial beliefs (Ross et al. 1975). The literature on initial impressions and belief perseverance implies that once a choice commitment has been made, individuals will be less likely to

deviate from the initial choice. This will be the case whether the subject is presented with disconfirming information or whether the subject is provided with the means to search for information on all alternatives (Shaklee and Fischhoff 1982). Therefore, it is expected that the choice commitment (the early choice in the choice commitment with announcement condition of timing of the choice) will be the announced choice (the end choice) for both the familiar product and the novel product. In addition, it is expected that the prior preference of the familiar product will be the announced choice.

Hypothesis 8: The announced choice is the choice commitment.

5.6 Confidence

Once a decision has been made and information search continues, it is suggested that individuals will become more confident in their choice (Lord et al. 1979). Individuals who hold strong initial preferences or opinions are likely to evaluate relevant evidence in a biased manner; thus, any additional evidence will likely be interpreted as supporting the decision (Koehler 1991). Therefore, it is expected that the self-reported measure of confidence in the choice should be greater for those in the choice commitment with announcement condition of timing of the choice than those in the announced choice only condition of timing of the choice. In addition, it is expected that in the familiar product category confidence in the choice should be greater for those with a prior preference than for those without a prior preference.

Hypothesis 9: Subjects with strong initial preferences will have greater confidence in the choice decision.

5.7 Summary

This chapter has presented nine hypotheses that will test the main propositions of the rationalization of choice model. The testing of the hypotheses will be discussed in the chapter dealing with the analysis of the data (Chapter 7) which follows the discussion of the manipulation pretest experiments.

CHAPTER SIX

Manipulation Pretest Experiments

6.1 Introduction

This chapter describes five experiments which were carried out as pretests for manipulations used in the main experiment. The pretest experiments included the determination of the product categories to be used, tests of the manipulations (justification manipulation of process and outcome, and trigger advertisements), determination of brand names for the novel product, and a pretest of the main experiment.

6.2 Pretest Experiment 1 - Product Preferences

The purpose of this experiment was to determine two products which could be used for consumer product choices in the main experiment. It was important that subjects have some prior knowledge of one product (the "familiar" product) and an interest in the second product (the "novel" product) and that both products have relevance to the student population. In addition, due to the three levels of trigger manipulation (trigger of Brand A, trigger of Brand B and control), it was important in the "familiar" product class, that one brand not totally control the market.

Subjects were 52 students in an Introductory Marketing class. All subjects received the same Product Preference Market Survey, a paper and pen task.

The "familiar" product. Subjects were asked to consider four product categories: portable CD players, portable stereos, VCRs and color televisions. These product categories were chosen because each alternative in these categories could be described by several attributes, the purchase decision for each of the products was assumed to include some degree of information search

and it was felt that student subjects would have had at least some exposure to each of the product categories.

Each product category was examined separately. Subjects were asked to indicate their preference for a particular alternative within each product category and to answer general ownership and product usage questions. This task in terms of questions, format and content was almost identical to that used in the prior preference section (section one) of the main experiment (see the main experiment computer screens in the Appendix).

Subjects were asked to allocate 100 points among the alternatives in a product category to indicate how much or how little they preferred each alternative. Each product category consisted of five alternatives or product profiles which were described by several attributes, including brand name, price, and specific features. The product attribute descriptions were determined from advertisements running in the local newspapers at that time. In addition, subjects were asked if they owned a product in that product category, the brand name of the product, other products they owned of the same brand, the amount of use of the product, features not listed that they would consider important when purchasing the product, whether they had purchased the product in the past 5 months and whether they would consider buying a product from the product category within the next 6 months.

The "novel" product. Subjects were then asked to consider a new product which was said to be in the development stage, an "electronic tutor." The tutor was described as a product for use by university students to improve their academic performance in a variety of subject areas. Subjects were asked several questions to determine general interest about the product, possible price points, academic course or subject areas of interest, potential for purchase, and

appropriate brand names for the product.

Results: "familiar" product. The results indicated that Sony was a highly preferred brand in these four product categories. In all three of the four product categories where the Sony brand was included as one of the product profile alternatives, it was preferred most often. In the fourth product category, where it was not one of the listed brands, Sony was most often noted as the brand currently owned. Thus, the use of one of these product categories required consideration of the inclusion of Sony.

Preference for a particular product profile was determined as the product profile which was given the highest preference score by each individual. If two or more alternatives were given the same highest score by an individual, that individual was deemed to be undecided.

In the category portable CD players, Sony was preferred by 30 of the 52 subjects (58%) and was tied with at least one other alternative in 14 of the 15 who were "undecided" (see Table 6-1). Of the 21 individuals who currently own a CD player, 18 own a Sony (86%).

--- Insert Tables 6-1 and 6-2 About Here ---

In the portable stereo category, 31 prefer Sony (60%) and 6 prefer Panasonic (12%). Of the 40 individuals who own a portable stereo, 19 own a Sony and 7 own a Panasonic.

In the category of color televisions Sony was not included as an alternative. Of the 52 subjects, 21 preferred Panasonic (40%), 8 preferred RCA (15%), and 6 preferred Toshiba (12%). Of the 34 individuals who could recall the brand name of the television set that they owned, 12 owned a Sony (35%), and 6 owned a Panasonic (17%).

In the category of VCRs (VHS), 23 subjects preferred Sony (44%), and 11

preferred Panasonic (21%). Of the 13 undecided individuals, 11 indicated an equal preference for Sony and Panasonic.

In the four product categories, all subjects owned a television and a VCR whereas 31 subjects did not own a portable CD player (60%) and 12 did not own a portable stereo (23%) (see Table 6-2). If ownership of a product constitutes general knowledge of the product class, this suggests that televisions or VCRs would be appropriate for the "familiar" product.

Of the four product categories, Sony did not have as great a market share in VCRs due to Sony's initial introduction of the beta format and their reluctant but eventual switch to the VHS format. In addition, Panasonic was a much stronger second in this product category than in the other three categories. Therefore it was decided that of these four product categories, VCRs would best fit the "familiar" product requirements of the main experiment.

Results: "novel" product. Forty of the 52 subjects (77%) indicated an interest in finding out additional information about the electronic tutor and 36 subjects (69%) indicated that they would consider purchasing the product. These results suggest that there is considerable interest in an electronic tutor among the students and therefore it would be an appropriate "novel" product for the main experiment. Subjects suggested a total of 26 possible brand names for this product. These names were tested in experiment #3 below.

6.3 Pretest Experiment 2 - Justification Manipulation

The purpose of this experiment was to pretest the justification manipulations and an hypothesis testing situation. With the justification manipulations, there were two considerations. First, the wording of the manipulation required testing to ensure that subjects in the justification of the process manipulation understood that their decision **process** was being

examined, and that subjects in the justification of the outcome manipulation understood that it was the decision **outcome** that was being examined. Second, it was hoped that both the process and outcome manipulations would result in differences from the choice control condition. The purpose of the hypothesis testing situation, was to determine the amount and type of information that subjects used when making a decision.

Subjects were 53 students in an Introductory Marketing class. These subjects were different from those taking part in pretest experiment #1 (above). Subjects were randomly assigned to four groups. All groups completed the same four survey instruments, a paper and pen task, but in a different order. For example, group #1 first completed the hypothesis testing instrument followed by choice (control), then process justification, then outcome justification whereas group #2 completed the choice instrument first followed by process, then outcome, then hypothesis testing, and so on. The four survey instruments appear in Figures 6-1, 6-2, 6-3, and 6-4.

--- Insert Figures 6-1 Through 6-4 About Here ---

Method. For the hypothesis testing situation subjects were told to assume that they had decided to purchase a VCR and had narrowed the choice down to five alternatives which they considered to be approximately equal in terms of features. They were then given the repair history information for VCRs which was taken from a consumer magazine. This information included the number of units needing repair and the average repair cost. If choice is based on repair history, both these pieces of information would be required to make an appropriate choice. For example, the number of units needing repair could be relatively low whereas the average repair cost could be relatively high, indicating that another alternative with a higher average repair rate but lower average

repair cost could be a better choice. That is, if 1 unit in 10 of Brand X required repair and the average cost of repair was $150, and if 1 unit in 5 of Brand Y required repair and the average cost of repair was $50, the expected value of repair for Brand X would be $15 whereas the expected value of repair for Brand Y would be $10. Thus, Brand Y, with a higher average repair rate, would be a better choice.

Subjects were asked to make a choice among the five alternatives and then to choose from among six statements which best matched the information used to make a choice. For example, "I ignored the repair history information and chose my preferred brand" or "I examined the repair information for 2 or more brands, but not all brands."

To test the justification manipulations (process, outcome and control), subjects were given each of three survey instruments which differed only in the scenario of the choice situation. In all conditions subjects were told that they had decided to purchase a VCR, that they had spent some time searching for information and had found that the alternatives listed were available. In the process justification situation subjects were also told that they would be justifying their decision to a friend and, in particular, the attributes available and the weighting of those attributes were emphasized. In the outcome justification situation subjects were also told that they would be justifying their decision to a friend and, in this survey, the reasons for the choice outcome were emphasized. Each survey consisted of the same four alternatives (same brand names, features and price). Subjects were asked to choose an alternative and explain their choice.

It was expected that there would be some carry over of choice from one survey instrument to the next which is consistent with one of propositions

advanced by this dissertation, that a strong prior preference will bias the choice decision. However, if the manipulation is strong enough, some of the subjects without strong prior preferences should reformulate their choice decision based upon the manipulation instructions.

Results. Analysis of variance was used to determine if there were differences in choices among the groups (due to order of completion of survey instrument), and among the four survey instruments (the three justification conditions and the hypothesis testing situation). There was a significant main effect for order of presentation ($p=.001$) and a significant order of presentation by survey interaction ($p=.03$; Table 6-3). For the most part, the hypothesis testing choice situation drove this result. Table 6-3a shows choices by group and survey type.

--- Insert Tables 6-3 and 6-3a About Here ---

Results: Justification Manipulations. The explanations of the choice for the outcome justification tended to be more global in nature and more centered on the particular alternative, for example: "Sony is a trusted brand name, known for quality," "my last Samsung worked well," "Hitachi is a good name," "it's a Sony, the other features are relatively unimportant." The explanations of the choice for the process justification also were global in nature, however more explanations tended to focus on attributes and on the weightings of the attributes, for example: "money is weighted with warranty period," "the VCR plus and event/timer features are of no importance, the most important feature is the three year warranty," "I considered the period of the warranty the most." The explanations of the choice for the control condition tended to be alternative-based and tended to state what was not needed rather than what features were important (i.e. discounting disconfirming information), for example: "I feel the

VCR plus is unnecessary, programming is not a big inconvenience," "VCRs don't break down a lot so I don't need a long warranty," "it's a good brand name with good product quality," "it looked the best." Thus, the justification manipulations had the desired result.

From the results of this pretest, it was decided to further strengthen the distinction in instructions for both the process and outcome justifications in the main experiment to delineate more clearly the difference between the two conditions and to aid the subject in understanding what was expected in the manipulation.

Results: Hypothesis Testing Situation. In the hypothesis testing situation, the survey instrument was designed such that Panasonic was fairly obvious in having the best repair history when taking into consideration both the number of units needing repair and the average repair cost, Hitachi was second and Sony was by far the worst. Part of the reason the test was set up in this manner was to determine if individuals who were fairly brand loyal to Sony (see the high number of subjects who chose Sony in pretest experiment #1 above), would switch to Panasonic given very favorable attribute values for Panasonic as compared to Sony. What was interesting was that the majority of subjects (79%) choose Panasonic for the hypothesis testing situation but many switched to another brand in the other conditions. In the three justification manipulations (described above), Panasonic was chosen a total of 36% of the time and Sony was chosen 42% of the time.

In terms of the amount of information used in the hypothesis testing situation, 71% said that they used all the information available (Table 6-4).

--- Insert Table 6-4 About Here ---

6.4 Pretest Experiment 3 - Brand Name: "Novel" Product

It was necessary to test appropriate brand names for the novel product. Four brand names were required for the main experiment.

As part of the Product Preference Market Survey (pretest experiment 1, above), subjects were asked to suggest possible brand names for the electronic tutor. A total of 26 brand names were suggested. Two names were dropped because they were too wordy (Crystal Academic Tutor - It Makes Things Clear for You, and Independent Study Manager System).

Subjects were a convenience sample of 18 undergraduate and graduate students.

Method. A description of the electronic tutor was given followed by the 24 possible brand names. Subjects were asked to rank the brand names with "1" indicating the most appealing brand name and "24" indicating the least appealing brand name for the product.

It was recognized that ranking 24 items is not an easy task. However, it was felt that subjects could fairly easily determine the top four or five most appealing brand names as well as the four or five least appealing brand names. What was of interest were the top ranked six brand names and ensuring that those brand names were not greatly disliked by a number of subjects. These six brand names would be used to test the effectiveness of the advertisements (pretest experiment 4) and from the results of that experiment, the brand names would be further reduced to four.

Results. The six brand names chosen were: Pocket Tutor, Portable Professor, Handi Prof, Study Mate, Portable Tutor and Edge (see Table 6-5).

--- Insert Table 6-5 About Here ---

6.5 Pretest Experiment 4 - Ad Effectiveness

To operationalize the trigger manipulation, it was necessary to have in each product category four advertisements that were approximately equal in effectiveness and two advertisements that were significantly better in effectiveness. These two "better" ads would be used as the "triggers" (i.e. trigger of brand A, trigger of brand B).

A student taking visual communications was asked to design six ads in each product category which would be approximately equal in appeal and two ads of somewhat greater appeal that could be used as triggers. Stereo and computer magazine advertisements were used as examples to aid in designing ads that would be as realistic as possible. As the main experiment was to be completed on a computer using the Toolbook program, the advertisements were prepared in that format.

Subjects were 15 students in a Consumer Behavior class. Subjects were given general instruction on the basic computer skills required to complete the experiment and were asked to work through the task at their own pace.

Method. Advertisements for the two product categories were presented in the same random order to all subjects. Subjects could view an ad for as little or as long a time as they wished. Following each advertisement, subjects were asked to rate the informativeness, believability, attention quality, copy flow and overall appeal of the ad on 7-point Likert scales.

Results. MANOVA was used to test for a significant difference among the ads on the five measures of effectiveness. The hypothesis that the ads were equal in effectiveness was rejected ($p=.00$ for VCRs, and $p=.07$ for electronic tutors; Tables 6-6 and 6-7).

Multiple comparison tests were done to determine if the trigger ads were

significantly different in the measures of effectiveness from the non-trigger ads and to determine if the non-trigger ads were significantly different from one another. Ideally, the trigger ads should differ from the non-trigger ads and the non-trigger ads should be similar. Of the six non-trigger ads that were designed in each product category, four ads with approximately equal average ratings were chosen. In the VCR category (Table 6-8), ads #1, #2, #5, and #8 were chosen as the non-trigger ads. In the electronic tutor category (Table 6-9), ads #1, #2, #4, and #7 were chosen as the non-trigger ads. VCR ad #6 was removed from consideration due to the exceptionally long computer delay in bringing the graphic of the VCR to the screen, and tutor ad #6 was removed from consideration due to the poor resolution of this ad on the computer screen. The trigger ads were ads #4 and #7 for VCRs and ads #3 and #8 for tutors. It should be noted that in total only four brand names for each product category would be used. For example, in the VCR category, there are trigger and non-trigger ads for Sony and Panasonic, and non-trigger ads only for Samsung and Hitachi.

--- Insert Tables 6-8 and 6-9 About Here ---

Two comparisons were done in each product category to determine if the trigger ads were significantly different from the non-trigger ads. Using the Bonferroni procedure such that the experimentwise error rate does not exceed .10, each hypothesis was tested at the .05 critical level. The hypothesis that there was no difference among the ads (e.g. Sony trigger ad to Samsung, Hitachi, and Panasonic non-trigger ads) was rejected for trigger ad #7 (VCR, $p=.00$) and #8 (tutor, $p=.05$) but was not rejected for trigger ads #4 (VCR, $p=.10$), and #3 (tutor, $p=.16$). Thus, two of the trigger ads required improvement before being used in the main experiment. The average ratings of the ads across

effectiveness measures (Tables 6-8 and 6-9) provided an indication of where improvements were necessary. For example, tutor ad #3 should be improved in believability and informativeness.

MANOVA was used to test the hypothesis that the four non-trigger ads were approximately equal across the five measures of effectiveness. This hypothesis could not be rejected for the tutor non-trigger advertisements ($p=.27$), but was rejected for the VCR non-trigger advertisements ($p=.002$). An examination of the ratings of the ads across effectiveness measures (Table 6-8) suggested that the ads differed most in informativeness. When an analysis was done with the informativeness measure removed, the hypothesis that the ads were approximately equal across the four measures of effectiveness could not be rejected ($p=.29$). Thus, the VCR non-trigger ads required improvement such that they were more equal in terms of information content.

6.6 Pretest Experiment 5 - Pretest of Main Experiment

In addition to determining whether the manipulations would work as planned, pretesting was required to ensure that subjects could work through the experiment without difficulty, and in the allotted time.

Two pretests were completed and minor adjustments were made to the experiment after each pretest. A specific examination of the tests of the experimental manipulations will be discussed in Chapter 7.

In the first pretest, subjects were 80 psychology students who were participating in the experiment for course credit. Subjects were thoroughly debriefed on an individual basis to specifically query subjects as to the appropriateness of the manipulations, any difficulties involved and any concerns that arose. At the completion of this pretest, the experimental instructions were improved and minor changes to the advertisements were made.

In the second pretest, subjects were 31 students attending summer school classes. Subjects were debriefed in a group and encouraged to make suggestions and/or comments to improve the experiment. The group interactions provided several helpful comments including the addition of a slight time constraint when searching for information to more realistically add a cost to gathering information.

CHAPTER SEVEN

Analysis of Data

7.1 Introduction

This chapter provides an analysis of the data used to test the hypotheses outlined in Chapter 5 and discusses the results of these tests in terms of the proposed rationalization of choice model. In addition, the manipulation checks are examined and discussed.

7.2 Subjects

Subjects were undergraduate students taking introductory psychology courses who participated in the experiment as part of their course requirement. A total of 466 subjects participated in the experiment, 32 responses from individuals who did not complete the choice task were discarded. Subjects were randomly assigned into one of 18 different conditions. This was accomplished by giving each subject a "password" that they were required to type into the computer before the program would open. The version of the survey that the subject received was determined by the "password" typed in. The experimental design and number of subjects in each cell is shown in Figure 7-1.

--- Insert Figure 7-1 About Here ---

The basic computer skills required were explained to subjects at the beginning of the experiment. Subjects were then asked to work through the experiment at their own pace. The total experimental time for each subject was 50 minutes which included a standardized debriefing at the end of the session. The computer-based experiment was conducted in a computer lab which accommodates about 25 subjects per session.

7.3 Dependent Variables

The dependent variables used in this study are: (1) search, (2) confirmatory search bias, (3) choice outcome, (4) change in preference, (5) confidence, (6) clarity of instructions, (7) mental effort, and (8) similarity of task.

Search. The dependent measure of total information search was operationalized as the total number of pieces of information looked at by the subject (Payne 1976; Payne, Bettman and Johnson 1988).

Confirmatory Search Bias. Confirmatory search bias was defined as the number of information searches over the chosen alternative divided by the total amount of information searched. The decision to operationalize confirmatory search bias in this manner was based on the literature which indicates that individuals will search for decision-consistent information (Snyder and Swann 1978b; Klayman and Ha 1987). Because an information display board provides the relevant attribute by brand information in a readily accessible manner, it was assumed that many individuals will search over the full range of information. If individuals went no farther than searching once over all available information, the confirmatory search bias measure would equal .25, indicating no bias. (Each of four brands is explained on seven attributes. If all information is searched once, the confirmatory search bias would equal 7/28 or .25). If, however, individuals revisited particular information to justify their choice decision, the confirmatory search bias measure would be greater than .25.

Choice Outcome. For the two choice tasks, subjects were required to select an alternative. The dependent measure for choice outcome was defined as the choice announcement. This was the final choice made after information search.

Change in Preference. Change in preference was defined to be a

dichotomous variable, the subject either changed his choice commitment or maintained the choice commitment when the choice announcement was made. This variable was measured only for subjects in the choice commitment with announcement condition of the timing of the choice.

Confidence. Subjects were asked to respond to the statement, "I feel confident that the choice I made is the right choice for me." A seven-point Likert scale was used, anchored with strongly disagree (1) and strongly agree (7).

Clarity of Instructions, Mental Effort and Similarity of Task. Subjects were asked to respond to a number of statements to determine if the experimental manipulations were obtrusive, if there were difficulties encountered in understanding instructions or working through the task, and whether the task was a reasonable approximation of a typical decision process. Seven-point Likert scales were used, anchored with strongly disagree (1) and strongly agree (7).

7.4 Tests of Hypotheses

Unless otherwise stated, the hypotheses outlined in Chapter 5 have been tested using univariate analysis of variance. Multivariate analysis of variance could also be used for the analysis. The issue revolves around the control of error rates and the probability of accepting a null hypothesis when it should be rejected. The univariate analysis is conceptually clearer and requires fewer tests. One of the grounds for the use of MANOVA is when the multiple criterion variables are correlated. For example, when an advertisement is shown to a subject and several responses with respect to the ad are asked of the subject. These responses would tend to be correlated. However, the use of MANOVA does not require the determination, *a priori*, of which variables are important but rather it allows for the simultaneous use of all relevant variables in the analysis.

Thus, the use of MANOVA would require a greater number of comparisons and may not accomplish the desired control of the error rates.

Unless otherwise stated, 3 X 3 X 2 ANOVAs with three between-subject independent variables: trigger (trigger of Brand A, trigger of Brand B and control), justification (outcome, process and control) and timing of choice (choice commitment with announcement vs. choice announcement only-control) were conducted. In one instance, the dependent variable relates to the VCR product category, in the other instance, the dependent variable relates to the electronic tutor product category.

7.4.1 Amount of Search

Hypotheses 1 and 2. These hypotheses state that information search will be greater when individuals anticipate having to justify the decision process and the decision outcome. Two 3 X 3 X 2 ANOVAs were conducted with the dependent variables being total amount of information search (VCRs, tutors). Tables 7-1 (VCRs) and 7-2 (tutors) show significant main effects for justification (VCRs: p=.000; tutors: p=.002), and significant interactions between justification and timing of choice (VCRs: p=.001; tutors: p=.055) and between trigger and justification (tutors only: p=.035).

The main effect of justification is examined in Figure 7-2: total search is greater for both the outcome and process justification conditions as compared to the control condition for both VCRs and tutors, which supports Hypotheses 1 and 2.

--- Insert Tables 7-1 and 7-2 About Here ---

--- Insert Figure 7-2 About Here ---

The difference in total search between the outcome and process conditions is not significant. Total search is greater for tutors, a novel product

category where individuals have only limited knowledge, than for VCRs, a product that is familiar to most individuals. This result is consistent with search literature which indicates that prior knowledge increases search efficiency (Brucks 1985).

Simple effects follow up tests for the justification and timing of choice interactions for both VCRs and tutors appear in Tables 7-3 and 7-4. The rationalization of choice model proposes that individuals will commit early to a choice, followed by information search to justify the choice before the choice announcement is made. Figures 7-3 and 7-4 indicate that the amount of search is approximately the same for those in the choice commitment with announcement condition, regardless of the justification condition, whereas the total amount of search differs for those in the choice announcement only-control condition when individuals are not explicitly asked to justify their decision process (these are the only two points that are significantly different from the others). Asking for an early choice commitment may have resulted in some subjects treating this early choice as final. There was, however, a substantial amount of information searched after the choice commitment had been made. This additional search may be directed more toward confirming the choice commitment which is consistent with the proposed rationalization of choice model.

Simple effects follow up tests for the trigger by justification interaction for the electronic tutor only (Table 7-5) indicate that a justification requirement increases the total amount of search in only those cases where a stimulus triggers a choice (Figure 7-5).

--- Insert Tables 7-3 Through 7-5 About Here ---

--- Insert Figures 7-3 Through 7-5 About Here ---

To summarize the results of the amount of information search, Hypotheses 1 and 2 are supported with significant main effects for justification for both VCRs and electronic tutors, with the total amount of search for the two justification conditions greater than the control condition.

7.4.2 Amount of Confirmatory Search Bias

Hypotheses 3, 4 and 5. These hypotheses examine the amount of confirmatory information search depending upon whether the individual has made a choice commitment for a particular product or whether the individual anticipates having to justify the decision outcome or the decision process. The rationalization of choice model suggests that an individual will commit early to a choice and once that choice commitment has been made, information search will be biased. Choice commitment was operationalized as the early choice in the choice commitment with announcement condition of timing of the choice for both VCRs and electronic tutors. Confirmatory search bias was defined as the number of information searches over the chosen alternative divided by the total amount of information searched.

While it may be argued that asking for an early choice commitment is an intrusive method, it must also be emphasized that the rationalization of choice model suggests that the choice commitment is triggered by a stimulus coupled with the individual's need or desire. In an experimental setting, this need or desire may or may not be present. The request for an early choice commitment was a means to have subjects go through the process as proposed by the rationalization of choice model.

Two 3 X 3 X 2 ANOVAs were conducted with the dependent variables being confirmatory search bias (VCRs and tutors).

Hypothesis 3 states that the amount of confirmatory search is greater for

individuals who have made a choice commitment than for individuals who have not made a choice commitment.

Table 7-6 (VCRs) shows a significant main effect for timing of the choice (p=.009). However, the effect is not significant for electronic tutors (Table 7-7; p=.297). Tukey HSD pairwise tests for the VCRs (Table 7-8) indicate that the confirmatory bias is in the direction expected. Confirmatory bias is significantly greater for those who have made a choice commitment than for those who have not. It should be noted that subjects in **both** conditions exhibit a confirmatory search bias. The confirmatory search bias measure for those in the choice announcement only-control condition is .271 (which is significantly different from .25; p=.02), while the measure for those in the choice commitment with announcement condition is .305.

It is of interest to examine whether the confirmatory search bias is confounded by those individuals who have not maintained their choice commitment, that is, those individuals who made a change in choice from commitment to announcement. Table 7-9 shows that both groups (those who maintained their choice commitment and those who did not) exhibit a confirmatory search bias. The amount of confirmatory search bias is not significantly different between groups for either VCRs or tutors.

Thus, subjects in both timing of the choice conditions rationalize their choice decision, as proposed by the rationalization of choice model. While asking for the early choice may have been somewhat intrusive, the confirmatory search bias result does not depend on this measure alone.

--- Insert Tables 7-6 Through 7-9 About Here ---

The discrepancy in results between the VCR and electronic tutor product categories can be examined in terms of the differences in knowledge levels in

the two product categories. In the VCR product category, most individuals have general product knowledge and many have strong prior preferences. In the electronic tutor category, however, the product category is new. Subjects have no prior knowledge of brand names and only general knowledge of other attributes that could be applied to this new product (e.g. battery life, price). As stated in Proposition 5 of the rationalization of choice model, the knowledge level and/or experience of the individual is predicted to affect the threshold level of external information search required to reach a particular comfort level. Hence, individuals choosing a novel product may be less likely to exhibit a confirmatory bias.

To summarize, Hypothesis 3 is supported for VCRs but is not supported for electronic tutors.

Hypotheses 4 and 5 examine the amount of confirmatory information search depending upon whether the individual anticipates having to justify the decision outcome or the decision process. In particular, it is postulated that confirmatory bias will be greater when an individual anticipates having to justify a decision outcome (Hypothesis 4) than when the need for justification is not explicit (i.e., the control condition). Further, if a more rational decision process is used when an individual anticipates having to justify the decision process, the search would be more objective in nature. This would suggest that the confirmatory search bias should be greater when the outcome must be justified than when the decision process must be justified (Hypothesis 5).

The main effect for justification is significant for both VCRs (Table 7-6: p=.048) and tutors (Table 7-7: p=.043). A series of Tukey Pairwise HSD tests (Table 7-10: VCRs, Table 7-11: tutors) were conducted. For VCRs these tests indicate that the difference in confirmatory search between justification of the

decision process and the control condition is marginally significant. For electronic tutors, the difference is marginally significant between justification of the decision outcome and the control conditions, and between decision process and the control condition.

--- Insert Tables 7-10 and 7-11 About Here ---

The confirmatory search bias for both VCRs and tutors is in the direction expected and are shown in Figure 7-6. These results indicate that the confirmatory search bias has increased for both justification conditions over the control condition. Hypotheses 4 and 5 specifically postulate that the confirmatory search bias for outcome justification would be greater than the confirmatory search bias for process justification. Thus, while confirmatory search bias has been shown to occur, and occur in the direction anticipated (greater for the outcome and process justification conditions than for the justification control condition), it was not shown to be greater for outcome than for process justification.

--- Insert Figure 7-6 About Here ---

The Effect of Prior Preferences and Trigger on Confirmatory Search Bias.

In the VCR product category, subjects were first asked to allocate 100 preference points among 5 VCR alternatives. This task was followed by the evaluation of advertisements which incorporated the trigger manipulation. According to the rationalization of choice model, if individuals have a strong prior preference, that preference will be strengthened when the trigger stimulus is consistent with the prior preference, and will be followed by a confirmatory information search.

A 3 X 2 ANOVA with three levels of justification (outcome, process and control) and two levels of trigger/preference (consistent with prior preference,

and not consistent with prior preference) was run with confirmatory search bias as the dependent measure. Table 7-12 shows that there is a significant main effect for justification (p=.004) and a significant trigger/preference by justification interaction (p=.020). Simple effects follow-up tests show that confirmatory search bias is greater when the trigger is consistent with prior preferences and the decision must be justified (Table 7-13). This result is consistent with the proposed rationalization of choice model.

--- Insert Tables 7-12 and 7-13 About Here ---

Summary. The results indicate that individuals do tend to exhibit a confirmatory search bias in anticipation of having to justify a choice. It was, however, anticipated that the confirmatory search bias would be reduced for justification of the decision process, and that individuals would be less likely to concentrate their search on their chosen alternative. This suggests that additional work may be required with respect to the operationalization of confirmatory bias. A discussion of confirmatory search bias follows in Chapter 8.

It should also be noted that confirmatory search is greater for tutors than for VCRs suggesting that in a novel product category, a greater amount of confirmatory search is needed to reach a comfort level with a choice. Thus, not only is total search greater for the novel product than the familiar product (Hypotheses 1 and 2 above), but confirmatory search is greater as well.

7.4.3 Choice Outcome

Hypotheses 6 and 7 examine the role of the trigger stimulus and prior preferences in the determination of the choice outcome. The rationalization of choice model suggests that a trigger stimulus will activate a cue in memory. If the stimulus is consistent with an individual's prior preference or if the individual does not have a strong prior preference, the stimulus will trigger choice. If the

individual's prior preference is different from the stimulus, the individual will maintain his initial preference. However, these outcomes will be mediated by the need to justify the decision.

Specifically, Hypothesis 6 postulates that when the decision process does not need to be justified, individuals will choose the triggered alternative (1) when they have no prior preferences, and (2) when the trigger is consistent with the individual's prior preference. Hypothesis 7 postulates that when no alternative is triggered and the individual anticipates justifying the choice outcome, then the individual will choose their prior preference.

For this group of hypotheses, only the VCR product choice will be examined. As the electronic tutor is an entirely new product, as yet unavailable in the marketplace, individuals will not have formed prior preferences for particular alternatives. To examine whether prior preferences interact with the trigger stimulus to determine choice, the early choice of the choice commitment with announcement condition of the timing of the choice cannot be used as a surrogate for prior preference. The prior preference measures for VCRs were taken during the first section of the experiment.

It should be noted that the product profile descriptions for the VCR product category (e.g., price and features) were **not the same** as the product descriptions in the information search and choice task of section three. Thus, an attribute-based examination and evaluation of alternatives may not have resulted in the same choice from section one to section three of the experiment. The differences in these values can be seen by examining the relevant computer screens in the Appendix. In addition, the advertisements tended to be primarily global in terms of information and generally did not provide specific attribute information. Both the differences in the attribute values and the global nature of

the advertisements were done to minimize the carryover of the choice commitment to choice announcement.

Analysis of variance was used to examine the effect of the trigger stimulus, the justification condition, and prior preferences on the choice outcome. Table 7-14 shows a significant main effect for trigger stimulus (p=.001) and prior preferences (p=.000) and a significant trigger stimulus by prior preference interaction (p=.020). These results indicate that the end choice is driven by both prior preferences and the trigger stimulus. The anticipation of justifying the decision outcome, however, did not affect the choice outcome (p=.124).

It was of primary interest to examine the effect of the trigger stimulus and prior preferences on the choice outcome unconfounded by search. Using only the subjects in the choice commitment with announcement condition of timing of the choice, a logit model was run (Table 7-15). Sony is used as the base case for this model. The effect of the trigger stimulus on the choice outcome is significant (p=.0056). All brands are significant (Hitachi, p=.000; Panasonic, p=.000; and Samsung, p=.000). In addition, the prior preference effects are significant for all three brands (Hitachi, p=.000; Panasonic, p=.000; Samsung, p=.0009). This suggests that if the individual states a preference for a brand other than Sony, then the individual is more likely to buy a brand other than Sony. In addition, there are no significant interactions of timing of choice with brand, trigger, or prior preference. Thus, in terms of the choice announcement, information search does not matter. These results provide strong support for the rationalization of choice model. The announced choice will be the choice commitment and information searched after the choice commitment has been made will not change the choice outcome (perseverance of beliefs).

--- Insert Tables 7-14 Through 7-16 About Here ---

Hypothesis 6 states that the triggered alternative will be chosen if the individual does not have a prior preference or if the individual's prior preference is consistent with the triggered alternative. Table 7-16 shows the percentage of subjects choosing the triggered alternative depending on whether the individual had a prior preference, and whether the prior preference was consistent or inconsistent with the triggered alternative. A likelihood ratio chi-square test (p=.000) indicates that these results are significant. These results indicate further support for the effect of trigger and prior preferences on the choice outcome.

Hypothesis 7 states that the individual will choose the alternative for which he has a prior preference when there is no triggered alternative and when the individual anticipates justifying the decision outcome. The results are consistent with the hypothesis, with 61% (p=.001) of the individuals choosing their prior preference when an alternative has not been triggered.

To summarize, there is strong support to show that both prior preferences and trigger stimulus affect the decision outcome as hypothesized. Hypotheses 6 and 7, however, cannot be fully supported due to the lack of effect of justification.

These results suggest that justification of the decision process may not result in a more objective choice of alternatives as had been proposed in the rationalization of choice model. Rather, it appears that those justifying the decision process are no less influenced by trigger stimuli and prior preferences than those in the outcome and control justification conditions.

7.4.4 Change in Preference

One of the main propositions of the rationalization of choice model suggests that an individual makes an early choice commitment and once that choice commitment is made, information search and evaluation are biased

toward the choice commitment. Thus, the choice commitment becomes the announced choice. Hypothesis 8 tests the proposition that the choice commitment determines the announced choice. For both the VCR and electronic tutor product categories, only those in the choice commitment with announcement choice condition of the timing of the choice are included in this examination.

Change in preference is a dichotomous variable, the subject either changed his choice decision or maintained his original choice decision. The probability of maintaining the choice decision is .25 (of the 16 possible outcomes, four would result in maintaining the choice decision). Thus, of the 236 subjects in the choice commitment with announcement condition of the timing of the choice, 59 individuals would be expected to maintain their choice decision. Table 7-17 indicates that the number of individuals whose announced choice was the choice commitment was 178 in the VCR product category and 135 in the electronic tutor product category. The probability of this occurring by chance is less than .0001.

For the VCR product category it may be questioned whether this result was driven by the number of individuals who favor Sony products. While 87% of those individuals who initially chose Sony maintained their choice of Sony; 62% maintained their choice of Hitachi, 64% of Samsung, and 52% of Panasonic.

The maintenance of the choice commitment can also be viewed by examining a contingency table of choice commitment versus choice announcement. As shown in Table 7-18 by the observed and expected values along the diagonal of the table, significantly more individuals maintained their choice commitment than would be expected. Thus, there is strong support for Hypothesis 8.

--- Insert Tables 7-17 and 7-18 About Here ---

7.4.5 Confidence

Hypothesis 9 states that individuals with strong initial preferences will have more confidence in their choice decision than those individuals without initial preferences. Initial preferences was operationalized as those individuals in the choice commitment with announcement condition of timing of the choice. For the VCR product category, confidence in the choice decision was also examined by using the prior preference measures from the first section in the experiment.

Two 3 X 3 X 2 ANOVAs were conducted with the dependent variables being the self-reported confidence measures (VCRs and tutors). Overall, individuals were very confident in their choices and were somewhat more confident in their VCR choice than in their choice of an electronic tutor (VCRs: 5.897/7.000; tutors: 5.664/7.000). However, the main effect for timing of the choice is not significant for either VCRs or tutors (Tables 7-19 and 7-20).

--- Insert Tables 7-19 and 7-20 About Here ---

Lord et al. (1979) suggest that individuals with strong initial preferences will tend to exhibit overconfidence. In the VCR product category, information regarding prior preferences for the product was gathered from subjects in the initial section of the experiment. The VCR confidence measure was examined with strong initial preferences being those individuals who assigned 60 or more preference points out of a possible 100 to a particular product profile. Table 7-21 shows that confidence is significant for VCRs ($p=.045$) when strong initial preferences is operationalized in this manner. Thus, Hypothesis 9 is supported for VCRs.

--- Insert Table 7-21 About Here ---

In addition, Lord et al. (1979) suggest that asking individuals to generate an explanation for their hypothesis will increase the individual's confidence in the hypothesis. This suggests that asking for the self-reported confidence measure may have been more appropriately placed after the subject had been asked to provide reasons for their choice, rather than directly after the choice had been made.

7.5 Clarity of Instructions, Task Difficulty, and Similarity of Task to Actual Decision Making

Analysis of variance tests were performed to examine whether the independent variables studied had an effect on the clarity of instruction, and the mental effort required to complete the tasks. In addition, the perceived similarity of the decision making process used in the experiment to an actual decision process used in making a purchase was examined.

7.5.1 Clarity of Instructions

A 3 X 3 X 2 ANOVA with clarity of instruction as the dependent variable indicates that the justification condition affected the rating of the clarity variable (Table 7-22). A series of Tukey Pairwise HSD tests (Table 7-23) shows that there is a significant difference in the rated clarity of instruction between the outcome and process justification conditions, and the process and control conditions. Clarity was highest in the control condition (6.132/7.000), and lowest in the process justification condition (5.741/7.000). Thus, subjects in the process justification condition found the instructions relatively more difficult than those in the other justification conditions. This effect is not surprising given that individuals typically do not tend to overtly consider the decision process that was used unless explicitly asked to do so. It should be noted, however, that even in the most difficult condition (process justification), subjects found the instructions

clear enough that they knew what they were supposed to do (5.741/7.000).

--- Insert Tables 7-22 and 7-23 About Here ---

7.5.2 Mental Effort Required

The next measure examined the subject's perception of the difficulty of the task in terms of the mental effort required. A 3 X 3 x 2 ANOVA with mental effort as the dependent variable indicates that at the .05 level there is no significant main effect or interaction (Table 7-24). The average rating of mental effort across the three conditions is 3.531/7.00 which suggests that subjects slightly disagreed with the statement, "This task required a great deal of mental effort."

--- Insert Table 7-24 About Here ---

7.5.3 Similarity of Task

To investigate whether the decision making examined in this experiment was similar to usual decision making tasks, four measures were collected: (1) the similarity of the mental process used in the experiment to that used when making an electronics purchase, (2) whether the subject tells a friend (or family) the reasons for a choice, (3) whether friends tell the subject the reasons for a choice, and (4) when making an electronics purchase, whether reasons to justify the choice are sought before the purchase is made. Each of these measures will be discussed, in turn, below.

Similarity of Mental Process. A 3 x 3 x 2 ANOVA with similarity of mental process as the dependent variable indicates a significant interaction between justification and timing of the choice (Table 7-25; p=.043). Simple effects follow up tests reveal that the effect of justification is significant when individuals are asked to make a choice only at the end of the decision process (Table 7-26). Tukey HSD pairwise tests (Table 7-27) suggest that this difference is between

those subjects in the outcome (5.045/7.00) and control (5.770/7.00) conditions of justification (p=.083). Subjects in the justification control condition were more likely to agree that the mental process used in the experiment was similar to that used when making an electronics purchase than were those in the outcome justification condition. Overall, subjects tended to agree that the mental processes that would be used in making a purchase of electronic equipment would be very similar to those used in the experiment (5.429/7.00). This suggests, therefore, that the decision making processes examined in the experiment appropriately portrayed those decision processes used by individuals when making an actual purchase.

--- Insert Tables 7-25 Through 7-27 About Here ---

Tell Friends Reasons for Choice. This measure examines whether individuals tend to tell their friends (or family) the reasons why they chose a particular product when making purchases similar to those in the experiment. A 3 x 3 x 2 ANOVA with justification to friends as the dependent variable indicates that at the .05 level there are no significant main effects or interactions (Table 7-28). Overall, individuals agreed with the statement that they usually justify their choice to friends (4.477/7.00).

Friends Justify Choices to Subject. It was also of interest to examine when a purchase is discussed between friends, whether the friend includes the reasons for the purchase in the discussion. A 3 x 3 x 2 ANOVA with the self-reported rating of justification of choice by friends as the dependent variable indicates that at the .05 level there are no significant main effects or interaction effects (Table 7-29). Overall, individuals slightly agreed with the statement that their friends usually provide reasons for a choice when discussing a purchase (4.291/7.00).

--- Insert Tables 7-28 and 7-29 About Here ---

Search for Reasons to Justify Choice Before Purchase. This final self-reported measure asked subjects whether they looked for reasons to justify a choice before an actual purchase, such as the electronic equipment in the experiment, was made. This is a direct examination of one of the propositions of the rationalization of choice model. The model suggests that part of the information search is explicitly directed toward acquiring justification for a choice. An average rating of 5.606/7.00 indicates that individuals acknowledge that they do look for reasons to justify a choice, which shows support for Proposition 4 of the rationalization of choice model.

A 3 x 3 x 2 ANOVA with justification for choice as the dependent variable shows a main effect for justification (Table 7-30; p=0.041). Tukey HSD pairwise tests (Table 7-31) show a slight difference between process justification and the control condition (5.4758 to 5.857). Thus, subjects in the justification control condition were somewhat more likely to agree with the statement that they looked for reasons to justify a choice before an actual purchase, than were the subjects in the process justification condition.

--- Insert Tables 7-30 and 7-31 About Here ---

To summarize, this section examined the similarity of the tasks in the experiment to actual decision making processes. In general, actual decision processes were appropriately portrayed in the experiment. In particular, the self-reported measures supported Proposition 4 of the rationalization of choice model which states that part of the information search is explicitly directed toward justifying a choice.

CHAPTER EIGHT

Discussion and Conclusions

8.1 Introduction

Interest in decision processes spans many years and several disciplines. The rationalization of choice model presented in this dissertation builds upon the foundations of the utility-based rational decision models based on the economic framework and the cognitive and social psychology-based information processing approach to decision making in examining consumer decision behavior. The proposed model is descriptive in nature and is aimed at increasing the understanding of the consumer's decision process.

Unlike previous decision approaches, the rationalization of choice model suggests that the choice commitment occurs very early in the decision process. In addition, it is posited that limited information search is required for the initial choice commitment and that information search continues after the choice commitment has been made. Information search and evaluation of information are biased toward the choice commitment.

The rationalization of choice model proposes four contributions to the marketing literature: (1) consumers use a rationalization process when making a choice decision, (2) little information may be used or needed for a choice decision, (3) the choice commitment occurs early in the decision process, and, (4) in contrast to rational choice models, the consumer carries out considerable post-choice information search and evaluation.

An experimental approach was used to examine the main propositions of the rationalization of choice model. The findings of the experiment are summarized below, along with a discussion of the boundary conditions of the

rationalization of choice model examined in the experiment, marketing implications, and future research directions.

8.2 Experiment

The findings generally support the rationalization of choice model (see Figure 8-1). In particular, it was shown that when individuals commit early to a choice, this commitment is maintained when their choice is announced. This result is particularly strong in that it was observed for both the familiar product and the novel product categories. In the examination of the familiar product category, the product profiles in the prior preference task differed from those in the information search task. Thus, individuals were presented with disconfirming evidence with respect to their choice commitment and yet the choice commitment was retained. With the novel product, individuals received only limited, general information in the advertisements about the electronic tutors. Indeed, one of the most noted comments made by individuals in their discussion of the ads was that there was very little specific information about the product. However, once individuals committed to a particular product choice, they maintained that choice. Thus, there was strong evidence to support the hypothesis that the choice commitment is made early in the decision process (Proposition 1), and is maintained.

--- Insert Figure 8-1 About Here ---

Secondly, it was shown that a stimulus can trigger the choice commitment (Proposition 2). The result that a stimulus triggers choice is not surprising or unexpected as there is considerable literature examining impulse buying behavior (e.g. Rook 1987). What is of interest is that this triggered choice could be replicated in an experimental setting using advertisements which are often less effective in triggering choice (Deighton 1984) than other stimuli such as

samples, point of purchase displays, the aroma of certain foods (e.g. cinnamon buns and other bakery goods) and so on. In addition, it is significant that this triggered choice commitment, once made, is retained. This result has marketing implications, discussed below.

Proposition 3, states that for a stimulus to trigger a choice commitment, the stimulus must be attended to and elaborated on by the consumer. While this proposition was not directly tested in the experiment, it was included as part of the task involving the advertisements.

Information search, Propositions 4, 5 and 8, was one of the main components of the rationalization of choice model examined in this study. In particular, an examination of total amount of information searched indicated that there was support for the hypothesis that information search will increase if an individual anticipates having to justify a choice to others such as a superior, spouse, or peer (Proposition 8). In addition, it was shown that after the choice commitment is made, the individual searches for additional information to support or justify the choice (Proposition 4). This proposition was examined using a measure for confirmatory search bias. While confirmatory search did increase, this increase did not satisfy the proposed boundary conditions of the rationalization of choice model (Proposition 9). The measure for confirmatory search bias is discussed below.

Propositions 5, and 10-12, dealing with individual-specific factors that are posited to impact the use of a rationalization process, were not tested in the experiment, and Propositions 6 and 7, dealing with the evaluation of information, were also not examined in this study. These are areas for further research.

In summary, the experimental manipulation specifically tested three main components of the rationalization of choice model: information search, the

choice commitment, and a stimulus to trigger choice. The results of the study provide general support for the model which suggests that there is a contribution to be made in continuing the test of the propositions of the rationalization of choice model.

8.3 Comparison of Rational Choice to Rationalization of the Choice

The rationalization of choice model suggests that in decision making there are several areas in which individuals can deviate from the process that is advanced by the rational decision model. These areas include information search, the timing of the choice, and the biased nature of search and evaluation. In particular, rational choice models typically suggest that choice is an output of information search and evaluation. However, it has been demonstrated in this study that individuals can and do commit early to a choice and retain that choice commitment.

Secondly, rational choice decision models assume that information search and evaluation of alternatives essentially end when a choice is made. This study has demonstrated that there is considerable post-choice search. This is particularly true when there is an anticipated explicit need to justify the choice decision.

The third main area of comparison between the rational decision model and the rationalization of choice model is in the biased nature of search and evaluation. The biased evaluation of information was not tested in this study and is an area for future research. The results from the examination of biased information search when investigated with respect to the expected boundary conditions of the rationalization of choice model were not as predicted. While there was evidence to support a confirmatory bias in search, additional work is required in the operationalization of confirmatory search bias.

8.4 Boundary and Limiting Conditions of Rationalization of Choice Model

In the development of the rationalization of choice model, it was suggested that there were boundary conditions within which the proposed model was more or less likely to operate. In particular, it was posited that a rationalization process would be used if an individual anticipated justifying his choice **outcome** but a rational process would be used if the individual anticipated justifying his choice **process**. The underlying motivation for this distinction was that if the outcome mattered, the individual would focus on the alternative; whereas, if the process mattered, the individual would focus on the attributes. This distinction between process and outcome was examined in terms of confirmatory search bias. However, the results were not as expected.

There are several possible reasons for the results: (1) the operationalization of confirmatory search bias may have been inappropriate, (2) the manipulation of the justification conditions of process and outcome were not strong enough to ensure differentiation between the two conditions, and/or (3) there is no actual difference in search strategy between process and outcome justification. Each of these reasons will be discussed, in turn, below.

Operationalization of confirmatory search bias. The rationale behind the operationalization of confirmatory search bias was that individuals would expend more effort examining information about their chosen alternative rather than comparing information across alternatives. Snyder and Swann (1978b) suggest that decision-consistent information will be searched, and, given that there is an inherent cost to information (Shugan 1980), individuals will limit the amount of information searched. Thus, the assumption was made that if an individual expected to justify a decision outcome, then the individual would want to gain

information about the attribute values of the chosen alternative (i.e. alternative-based search).

However, the assumption that confirmatory search bias would primarily involve alternative-based information search may have been inappropriate. The type of decision rule or heuristic used by an individual to determine or justify choice may result in differences in information searched and hence in confirmatory search. If an individual uses an attribute-based decision rule and justifies choice on the basis of those attributes for which his chosen product is "best," the individual may ignore information on which his chosen product is known to be "poor." For example, an individual may confirm that Sony is best on warranty by examining values for warranty across alternatives but avoid an examination of price for which Sony is typically higher than other alternatives.

Confirmatory search bias may also be examined in terms of inferences (e.g. Johnson 1987). For example, the quality of a product may be considered a somewhat nebulous attribute that may be viewed differently by individuals. Quality may be inferred by an examination of warranty period or repair records by some individuals or may be inferred by other individuals as that product which has the highest price. Those individuals that use warranty to infer quality may avoid an examination of price whereas those who use price may avoid an examination of repair record or warranty. An examination of the effectiveness responses on the advertisements from the experiment suggests that this may indeed be the case. For example, "Sony may cost more, but you get what you pay for," and "I want a good quality VCR that doesn't need a lot of repairs." Thus, confirmatory search bias may require operationalization at the individual rather than the aggregate level.

The experiment was designed to allow for two measures of confirmatory

bias. The second measure involved the written evaluation of the effectiveness of the advertisements presented to subjects. It was expected that subjects would be more likely to counterargue ads that disconfirm their prior preferences; and would be more likely to mention confirming arguments rather than disconfirming arguments. During pretests it became apparent that the majority of subjects were giving only a short evaluation of the advertisements even though subjects were asked in the experiment to comment on both the positive and negative features of the ad (e.g. "It made it seem that the VCR was easy to use while still having excellent qualities," "This was very appealing, I liked the contrast," "The way it emphasizes the quality of its product is good"). While there were some subjects who did provide a substantial evaluation of the ads, in total there was an insufficient number for a comparison across conditions. Thus, a measure of the number of confirming arguments to the total number of arguments could not be made.

Manipulation of outcome and process justification. It could be suggested that the confirmatory search results were due to an inadequate manipulation of outcome and process justification. The difference between outcome and process justification is subtle. Typically, when individuals justify a choice to family or friends, it is the choice outcome that is justified. For example, "I chose the Panasonic portable CD player because Panasonic is known to make quality products and I felt that it was a good value for the features that were available." Individuals are less likely to explain how a choice was made (e.g. examination of attributes, weighting and evaluation of attributes and alternatives).

To determine whether the experimental manipulation of process and outcome justification was appropriate, all subjects were asked to provide both process and outcome justifications for their choices of a VCR and electronic

tutor. The justifications (Part 4 in the experiment) were analyzed by an independent coder according to whether the justification was more global in nature and alternative-based (outcome justification) or whether the justification was attribute-based and included an evaluation across alternatives and/or a weighting of attribute importance (process justification). The justifications were coded on a five-point scale with "1" being a global alternative-based justification and "5" being an attribute-based justification with a discussion of weighting and examination of attributes across alternatives. Figure 8-2 shows that subjects were able to distinguish between process and outcome justifications, and that the responses to the two justification tasks do differ.

--- Insert Figure 8-2 About Here ---

No difference in search strategy. In the experiment, the manipulation of process and outcome justification may not have resulted in a difference in information search strategy due to the explicit need for justification.

In describing the rationalization of choice model, it was proposed that there were boundary conditions for which the rationalization of choice model would be more or less likely to operate. It was suggested that if an individual anticipated having to justify the decision process that was used in making a choice, the individual would be more likely to use a rational decision process. This process is attribute-based and involves an unbiased examination and evaluation of information. For example, individuals who routinely make purchase decisions for their company may ensure that all attribute information is gathered and evaluated to counter any inquiries after the choice has been made. These inquiries may take various forms such as a comparison of one alternative to another or an examination of various attributes. This need for justification is implicit.

However, making the justification explicit, that is, suggesting to subjects that they may be required to explain their decision process for their chosen alternative may have resulted in a more directed justification process. That is, subjects would tend to ensure that in addition to information gathered on attributes across alternatives, information specific to the chosen alternative would also be gathered. Thus, these individuals may have also exhibited a confirmatory bias depending on whether the search was across all attributes and alternatives or a subset.

It is apparent from this study that confirmatory search bias is a complex process which requires additional investigation at both the individual and aggregate levels.

8.5 Marketing Implications

A number of marketing implications are suggested from the results of this study.

The rationalization of choice model provides the rationale for the importance of initial or stimulus information which has marketing implications for advertising, distribution, displays, promotions, and the timing of initiatives.

The rationalization process suggests many promotional applications. For example, an ad campaign could encourage a consumer to use a rationalization process, such as Infiniti's ad, "Start rationalizing." For a brand that is not the top selling brand in a category, an advertising campaign should encourage consumers to justify their choice decision and provide them with the information to compare attributes across brands (this type of campaign would be appropriate only if the "underdog" brand has comparable or more preferred attribute levels on at least some of the attributes). In addition, advertising can be used to provide reasons for the choice, and to sustain initial beliefs, such as Ford's

advertising slogan, "Quality is Job 1."

The rationalization of choice model also provides the rationale for the importance of promotional activities such as free samples and in-store displays in triggering a choice commitment. The aroma of freshly baked cinnamon buns is a good example of the power of a stimulus to trigger choice.

The rationalization of choice model suggests implications for tourism, services, and business-to-business marketing. For tourism, the importance of timely stimulus information to encourage a rationalization process, such as an advertising campaign in early winter, "You can't escape winter so you might as well enjoy it...hotel and ski packages available... ." In business-to-business marketing where many purchases are rebuys, the rationalization of choice model provides the rationale for the importance of product trial as a means for a new supplier to break into an established buyer-supplier relationship. Due to the perseverance of beliefs, buyers will tend to look for confirming information to maintain current suppliers (e.g. price, delivery, etc.). "Brand X fulfills the needs of the company, the terms of supply are acceptable and so we will continue to purchase Brand X." A supplier attempting to break into an established buyer-seller relationship needs to demonstrate that their product is better than that of the established buyer in addition to showing that the terms of supply are as good, if not better, than the established supplier. Thus, the product trial may provide the stimulus for the buyer to rationalize a change in suppliers.

The rationalization of choice model aids in the understanding of the consumer's decision making process and there are an abundance of examples of marketing implications based on the rationalization process discussed in this study.

8.6 Future Research Directions

The rationalization of choice model suggests a variety of research opportunities in marketing. For example, the use of the rationalization of choice model could be examined in choices among noncomparable alternatives such as the choice between purchasing a new car and going on a vacation (Johnson 1985). This type of choice typically does not involve trade-offs among attributes due to the lack of common attributes among alternatives. A rationalization process in choices among noncomparable alternatives may be closer to that described in the cognitive dissonance literature when there is a difficult choice between two or more alternatives. For example, the information search may be specifically aimed at rationalizing why the purchase of a car would be a better decision than the holiday, rather than aimed at the particular attributes of the car or the holiday.

In addition to examining the rationalization of choice model to marketing applications, a number of the propositions discussed in the conceptual framework of the model have not been tested. Thus, research could be directed at gaining a greater understanding of the permanence of a consumer's initial preferences and what factors might encourage a change in the initial choice commitment. Some of the factors that could be tested include the strength of belief in the initial choice commitment, the strength of commitment (e.g. a consumer who has always purchased a Ford has a strong commitment to Ford products), the amount and strength of disconfirming evidence and the credibility of the source of confirming evidence. In addition, the effect of consumer knowledge and expertise, and the risk involved in the decision are posited to be factors that will interact with the use of a rationalization process.

The evaluation component of the rationalization of choice model was not

examined in this study. In particular, it is suggested that individuals differentially weight attributes and that there is a shifting in importance dependent upon their choice commitment. In a study of changes in attribute range, weight shifting has been shown to occur (White, Johnson and Louviere 1992), however, this study did not examine weight shifting in terms of initial preferences or a chosen alternative.

8.7 Summary

In summary, this study has shown support for the use of a rationalization process in consumer decision making. Additional research, however, is required to further explore this rationalization process. In particular, additional work is necessary in the areas of confirmatory search bias, weighting and evaluation, and individual-specific factors which may affect when a rationalization process would be more likely to be used.

TABLE 6-1
Brand Preferences

	# Preferred	% Preferred
Portable CD Players		
Kenwood	0	0
Magnavox	1	2
Panasonic	4	8
RCA	2	4
Sony	30	58
"Undecided"	15	29
	52	100%
Portable Stereo		
Craig	2	4
Panasonic	6	12
RCA	3	6
Sharp	0	0
Sony	31	60
"Undecided"	10	19
	52	100%
Color Television		
Panasonic	21	40
RCA	8	15
Samsung	0	0
Toshiba	6	12
Zenith	3	6
"Undecided"	14	27
	52	100%
VCRs (VHS)		
Hitachi	0	0
Panasonic	11	21
Samsung	2	4
Sanyo	3	6
Sony	23	44
"Undecided"	13	25
	52	100%

TABLE 6-2
Ownership and Use in Four Product Categories

	Own	Use Daily	Use 3 Times/Week	Use Once/Week	Use Seldom	Use Never
CD Player	21	9	6	4	3	0
Portable Stereo	40	28	5	3	3	1
VCR	52	8	13	20	10	2
Color TV	52	45	5	1	2	0

TABLE 6-3
Effect of Survey and Order of Presentation on Choice

SOURCE	SS	DF	MS	F-RATIO	P
Survey (S)	13.69	3	4.563	2.043	.270
Order of Presentation (OP)	27.73	3	9.243	75.090	.001
S x OP	18.39	9	2.043	16.599	.030
Error	21.67	176	.123		

TABLE 6-3a
Product Choices by Group and Survey Type

Group #1

	Hitachi	Panasonic	Samsung	Sony	Sanyo
hypothesis testing	0	100%	0	0	0
choice control	0	33%	8%	58%	-
process	0	42%	8%	50%	-
outcome	0	33%	8%	58%	-

Group #2

	Hitachi	Panasonic	Samsung	Sony	Sanyo
choice control	0	45%	18%	36%	-
process	0	67%	7%	27%	-
outcome	0	67%	11%	22%	-
hypothesis testing	0	75%	8%	17%	0

Group #3

	Hitachi	Panasonic	Samsung	Sony	Sanyo
process	8%	8%	50%	33%	-
outcome	6%	38%	38%	19%	-
hypothesis testing	0	87%	0	7%	7%
choice control	0	73%	13%	13%	-

Group #4

	Hitachi	Panasonic	Samsung	Sony	Sanyo
outcome	8%	8%	23%	62%	-
hypothesis testing	8%	54%	0	23%	14%
choice control	0	8%	23%	69%	-
process	8%	8%	15%	69%	-

TABLE 6-4
Hypothesis Testing - Information Use by Product Choice

Info Type	Hitachi	Panasonic	Samsung	Sony	Sanyo	Total
1	0	0	0	4	0	4
2	0	0	0	0	0	0
3	0	1	0	0	0	1
4	1	30	1	2	3	37
5	0	10	0	0	0	10
6	0	0	0	0	0	0
Total	1	41	1	6	3	52

Information Type:

1 I ignored the repair history information and chose my preferred brand (column 1 information only).

2 I examined the repair information only for the one brand that I preferred (one row of information).

3 I examined the repair information for 2 or more brands, but not all brand (2 or more rows of information).

4 I examined all the repair information for all brands (all the repair information that is provided above, columns 1, 2 and 3).

5 I examined the number of units requiring repair for all brands (columns 1 and 2 only).

6 I examined the repair costs for all brands (columns 1 and 3 only).

TABLE 6-5
Brand Names: Electronic Tutor - Ranking

Rank	Brand Name	Mean	Standard Deviation	Min/Max	
1	**Pocket Tutor**	6.5	5.7	1	21
2	**Portable Professor**	6.9	6.1	1	23
3	**Handi Prof**	7.4	5.89	1	21
4	**Study Mate**	8.06	5	1	18
5	**Portable Tutor**	9.2	5.5	2	19
6	**Edge**	9.8	6.9	1	24
7	Private Tutor	10.1	4.4	3	18
8	University Edge	10.5	6.8	1	23
9	University Tutor	10.6	6.6	1	23
10	Studyman	10.8	6.9	1	24
11	Electronic Tutor	10.9	6.7	3	24
12	Grade Max	11.4	5.2	1	21
13	GPA Booster	11.9	5.9	2	23
14	Student Tutor	12	6.2	3	22
15	Brainwave	13.1	5.99	4	22
16	Academia	13.4	6.5	1	24
17	Smart Skills	13.5	4.1	8	20
18	Tutor King	14.6	6.4	2	21
19	GPA Boost Tutor	15.1	6.95	2	24
20	Academic Excellence	16.6	3.5	9	23
21	Smart Boy	17.5	6.6	2	23
22	Teachers' Pet	19.2	4.9	7	24
23	Crystal Tutor	19.2	5.1	7	24
24	School Maid	21.6	4.8	5	24

TABLE 6-6
Test for Ad Effectiveness - VCRs
MANOVA

Univariate F Tests

VARIABLE	SS	DF	MS	F	P
Informative	139.289	7	19.898	12.982	0.000
Error	168.610	110	1.533		
Believability	27.127	7	3.875	2.454	0.022
Error	173.729	110	1.579		
Attention	71.814	7	10.259	5.221	0.000
Error	216.152	110	1.965		
Copy Flow	19.236	7	2.748	1.471	0.185
Error	205.552	110	1.869		
Appeal	32.214	7	4.602	2.538	0.018
Error	199.481	110	1.813		

Multivariate Test Statistics

Wilks' Lambda = 0.319
F-Statistic = 3.998 DF = 35, 448 PROB = 0.000

TABLE 6-7
Test for Ad Effectiveness - Tutors
MANOVA

Univariate F Tests

VARIABLE	SS	DF	MS	F	P
Informative	34.586	7	4.941	2.518	0.019
Error	27.767	111	1.962		
Believability	20.910	7	2.987	2.072	0.052
Error	160.014	111	1.442		
Attention	26.896	7	3.842	1.805	0.093
Error	236.281	111	2.129		
Copy Flow	38.019	7	5.431	2.980	0.007
Error	202.300	111	1.823		
Appeal	33.919	7	4.846	2.509	0.020
Error	214.400	111	1.932		

Multivariate Test Statistics

Wilks' Lambda = 0.651
F-Statistic = 1.388 DF = 35, 452 PROB = 0.073

TABLE 6-8
Average Ratings Indicating Ad Effectiveness
VCRs

	Inform	Believe	Attend	Copy Flow	Appeal	Avg.
AD#1	4.87	4.53	3.93	4.27	4.07	4.33
AD#2	3.27	3.67	3.93	3.87	3.6	3.67
AD#3	2.57	3.43	2.29	3.07	2.71	2.81
AD#4*	5.0	4.6	4.47	4.27	4.33	4.53
AD#5	4.73	5.0	3.8	4.53	4.27	4.47
AD#6	4.93	4.53	4.47	4.27	4.21	4.48
AD#7*	2.27	4.13	5.27	4.07	4.47	4.94
AD#8	2.93	4.2	3.93	4.0	3.87	3.79

* trigger ad

TABLE 6-9
Average Ratings Indicating Ad Effectiveness
Electronic Tutors

	Inform	Believe	Attend	Copy Flow	Appeal	Avg.
AD#1	3.4	3.6	4.2	4.3	4.0	3.9
AD#2	3.8	3.73	4.47	4.27	4.2	4.09
AD#3*	4.4	4.13	4.93	4.73	4.53	4.55
AD#4	3.13	3.67	4.0	3.6	3.27	3.53
AD#5	4.53	4.8	4.8	4.73	4.47	4.67
AD#6	3.47	3.8	3.73	3.47	3.73	3.64
AD#7	3.53	3.8	3.67	3.53	3.47	3.6
AD#8*	4.67	4.6	4.87	4.93	4.93	4.8

* trigger ad

TABLE 7-1
Effect of Trigger Stimulus, Justification, and Timing of Choice on Total Amount of Information Searched - VCRs

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	162.096	2	81.048	0.604	0.547
Justification (J)	3255.244	2	1627.622	12.124	0.000
Timing of Choice (TC)	45.899	1	45.899	0.342	0.559
T x J	819.220	4	204.805	1.526	0.194
T x TC	508.913	2	254.456	1.895	0.152
J X TC	2141.624	2	1070.812	7.976	0.001
T x J x TC	579.376	4	144.844	1.079	0.367
Error	49537.410	369	134.248		

TABLE 7-2
Effect of Trigger Stimulus, Justification, and Timing of Choice on Total Amount of Information Searched - Tutors

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	8.177	2	4.089	0.033	0.968
Justification (J)	1559.496	2	779.748	6.257	0.002
Timing of Choice (TC)	269.399	1	269.399	2.162	0.142
T x J	137.509	4	326.877	2.623	0.035
T x TC	399.952	2	199.976	1.605	0.202
J X TC	727.274	2	363.637	2.918	0.055
T x J x TC	322.019	4	80.505	0.646	0.630
Error	46981.601	377	124.620		

TABLE 7-3
Simple Effects Follow Up Tests:
Total Search: Timing of Choice by Justification - VCRS

SOURCE	SS	DF	MS	F	P
Timing of Choice=Choice Commitment with Announcement					
Justification	82.131	2	41.066	0.414	0.661
Error	20435.065	206	99.199		
Timing of Choice=Choice Announcement only-Control					
Justification	4612.865	2	2306.433	12.954	0.000
Error	31158.933	175	178.051		

TABLE 7-4
Simple Effects Follow Up Tests:
Total Search: Timing of Choice by Justification - Tutors

SOURCE	SS	DF	MS	F	P
Timing of Choice=Choice Commitment with Announcement					
Justification	170.005	2	85.002	0.748	0.475
Error	24093.651	212	113.649		
Timing of Choice=Choice Announcement only-Control					
Justification	1798.949	2	899.475	6.402	0.002
Error	24867.162	177	140.492		

TABLE 7-5
Simple Effects Follow Up Tests:
Total Search: Trigger by Justification Interaction - Tutor

SOURCE	SS	DF	MS	F	P
Trigger of Brand A					
Justification	1357.834	2	678.917	5.367	0.006
Error	15306.771	121	126.502		
Trigger of Brand B					
Justification	833.595	2	416.798	3.242	0.043
Error	13371.152	104	128.569		
Trigger Control					
Justification	455.206	2	227.603	1.857	0.159
Error	19731.983	161	122.559		

TABLE 7-6
Effect of Trigger Stimulus, Justification, and Timing of Choice on Confirmatory Search Bias - VCRs

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	0.054	2	0.027	1.981	0.140
Justification (J)	0.084	2	0.042	3.053	0.048
Timing of Choice (TC)	0.095	1	0.095	6.886	0.009
T x J	0.042	4	0.010	0.759	0.553
T x TC	0.009	2	0.005	0.345	0.709
J X TC	0.024	2	0.012	0.886	0.413
T x J x TC	0.062	4	0.015	1.126	0.344
Error	5.034	366	0.014		

TABLE 7-7
Effect of Trigger Stimulus, Justification, and Timing of Choice on Confirmatory Search Bias - Tutors

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	0.004	2	0.002	0.273	0.761
Justification (J)	0.046	2	0.023	3.167	0.043
Timing of Choice (TC)	0.008	1	0.008	1.089	0.297
T x J	0.006	4	0.001	0.194	0.942
T x TC	0.003	2	0.001	0.197	0.820
J X TC	0.026	2	0.013	1.786	0.169
T x J x TC	0.011	4	0.003	0.372	0.829
Error	2.742	375	0.007		

TABLE 7-8
Tukey HSD Tests for Confirmatory Search Bias - VCRs:
Matrix of Pairwise Comparison Probabilities
Timing of Choice

CONDITION	MEAN	N	Choice Commitment with Announcement	Choice Announcement only-Control
Choice Commitment with Announcement	0.305	208	1.000	
Choice Announcement only	0.271	176	.006	1.000

TABLE 7-9
An Examination of Confirmatory Search Bias on the Choice Commitment/Announcement

	Commitment Equal to Announcement	Commitment Not Equal to Announcement
VCRs	.310	.290
Tutors	.305	.314

TABLE 7-10
Tukey HSD Tests for Confirmatory Search Bias - VCRs:
Matrix of Pairwise Comparison Probabilities
Justification

CONDITION	MEAN	N	Outcome Just.	Process Just.	Control
Outcome	.299	135	1.000		
Process	.303	111	0.943	1.000	
Control	.269	138	0.113	0.056	1.000

TABLE 7-11
Tukey HSD Tests for Confirmatory Search Bias - Tutors:
Matrix of Pairwise Comparison Probabilities
Justification

CONDITION	MEAN	N	Outcome Just.	Process Just.	Control
Outcome	.313	137	1.000		
Process	.312	116	0.994	1.000	
Control	.289	140	0.057	0.093	1.000

TABLE 7-12
Effect of Justification and Trigger Preferences on Confirmatory Search Bias - VCRs

SOURCE	SS	DF	MS	F-RATIO	P
Justification (J)	0.136	2	0.068	5.763	0.004
Trigger/Preference (TP)	0.002	1	0.002	0.161	0.689
J x TP	0.095	2	0.048	4.037	0.020
Error	1.802	153	0.012		

TABLE 7-13
Simple Effects Follow Up Tests:
Confirmatory Search Bias: Justification by Trigger/Preference

SOURCE	SS	DF	MS	F	P
Trigger/Preference: Trigger Not Consistent with Prior Preference					
Justification	0.030	2	0.015	1.137	0.322
Error	4.156	266	0.013		
Trigger/Preference: Trigger Consistent with Prior Preference					
Justification	0.136	2	0.068	3.635	0.032
Error	1.101	59	0.019		

TABLE 7-14
Effect of Trigger Stimulus, Justification and Prior Preferences on Choice - VCRs

VARIABLE	COEFF.	STD ERROR	T	P
Constant	2.254	0.159	14.153	0.000
Trigger(T)	0.622	0.194	3.214	0.001
Justification (J)	0.289	0.187	1.544	0.124
Prior Preferences (PP)	0.358	0.051	7.063	0.000
T x J	0.148	0.230	0.642	0.521
T x PP	-0.143	0.061	-2.347	0.020
J x PP	-0.085	0.060	-1.414	0.158
T x J x PP	-0.041	0.074	-0.553	0.581

TABLE 7-15
Effect of Prior Preferences and Trigger on Choice Outcomes - VCRs
Multinomial Logit

Dependent Variable: choice

Parameter	Parameter Estimate	SE of Estimate	T-stat	P
Hitachi	-2.8311	.24825	-11.404	.0000
Panasonic	-2.3007	.22704	-10.133	.0000
Samsung	-3.9297	.33203	-11.836	.0000
Trigger	.4215	.15202	2.773	.0056
Hitachi/Order	-.1738	.24825	-.700	.4840
Panasonic/Ord	-.1288	.22704	-.567	.5704
Samsung/Order	-.1738	.33202	-.523	.6007
Trigger/Order	.0633	.15202	.417	.6769
PriorPref-H	2.2999	.43250	5.318	.0000
PriorPref-P	1.8954	.29380	6.451	.0000
PriorPref-S	1.3097	.39333	3.330	.0009
Prior/OrderH	-.2952	.43250	-.683	.4948
Prior/OrderP	.0086	.29380	.029	.9766
Prior/OrderS	-.3784	.39333	-.962	.3360

TABLE 7-16
Effect of Trigger Stimulus and Justification on Choice - VCRs
Percentage of Subjects

	No Prior Preferences	Prior Preference Equal to Trigger Stimulus	Prior Preference Not Equal to Trigger Stimulus
Choose Trigger	63%	70%	43%
Do Not Choose Trigger	37%	30%	57%

Likelihood Ratio Chi-Square = 308.50 p=0.000

TABLE 7-17
An Examination of the Choice Commitment on the Announced Choice

Change in Preference: VCRs	
Maintain Choice (Choice Announcement Same as Choice Commitment)	178
Change Choice (Choice Announcement Different from Choice Commitment)	58
	236
Change in Preference: Electronic Tutors	
Maintain Choice (Choice Announcement Same as Choice Commitment)	135
Change Choice (Choice Announcement Different from Choice Commitment)	101
	236

TABLE 7-18
An Examination of Change in Preference:
Observed and Expected Values

Choice Commitment	Choice Announcement: Hitachi	Panasonic	Samsung	Sony	Total
Hitachi	18 (3)	2 (5)	0 (2)	9 (19)	29
Panasonic	2 (5)	25 (8)	2 (3)	19 (32)	48
Samsung	0 (2)	2 (2)	9 (1)	3 (9)	14
Sony	5 (15)	12 (26)	2 (8)	126 (96)	145
Total	25	41	13	157	236

Observed (Expected)
Chi-square = 243.086 p=.000

TABLE 7-19
Effect of Trigger Stimulus, Justification, and Timing of Choice on Self-Reported Confidence - VCRs

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	0.721	2	0.360	0.323	0.724
Justification (J)	0.083	2	0.042	0.037	0.964
Timing of Choice (TC)	2.464	1	2.464	2.207	0.138
T x J	0.423	4	0.106	0.095	0.984
T x TC	8.892	2	4.446	3.982	0.020
J X TC	3.771	2	1.885	1.689	0.186
T x J x TC	6.574	4	1.644	1.472	0.210
Error	455.493	408	1.116		

TABLE 7-20
Effect of Trigger Stimulus, Justification, and Timing of Choice on Self-Reported Confidence - Tutors

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	0.080	2	0.040	0.029	0.972
Justification (J)	5.114	2	2.557	1.833	0.161
Timing of Choice (TC)	1.780	1	1.780	1.276	0.259
T x J	4.126	4	1.032	0.740	0.565
T x TC	3.202	2	1.601	1.148	0.319
J X TC	2.578	2	1.289	0.924	0.397
T x J x TC	6.741	4	1.685	1.208	0.307
Error	567.755	407	1.395		

TABLE 7-21
Effect of Trigger Stimulus, Justification, and Prior Preferences on Self-Reported Confidence - VCRs

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	3.160	2	1.580	1.409	0.246
Justification (J)	0.117	2	0.058	0.052	0.951
Prior Preferences (PP)	4.523	1	4.523	4.034	0.045
T x J	2.990	4	0.747	0.667	0.615
T x PP	5.350	2	2.675	2.386	0.094
J X PP	1.112	2	0.556	0.496	0.610
T x J x PP	6.455	4	1.614	1.439	0.220
Error	457.464	408	1.121		

TABLE 7-22
Effect of Trigger Stimulus, Justification, and Timing of Choice on Clarity of Instruction

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	6.464	2	3.232	2.094	0.125
Justification (J)	10.957	2	5.479	3.549	0.030
Timing of Choice (TC)	1.142	1	1.142	0.740	0.390
T x J	6.686	4	1.671	1.083	0.365
T x TC	2.669	2	1.334	0.864	0.422
J X TC	5.331	2	2.665	1.727	0.179
T x J x TC	8.009	4	2.002	1.297	0.271
Error	554.131	359	1.544		

TABLE 7-23
Tukey HSD Tests for Clarity of Instructions:
Matrix of Pairwise Comparison Probabilities

CONDITION	MEAN	N	Outcome Just.	Process Just.	Control
Outcome	6.120	131	1.000		
Process	5.741	131	0.050	1.000	
Control	6.132	153	0.997	0.028	1.000

TABLE 7-24
Effect of Trigger Stimulus, Justification, and Timing of Choice on Mental Effort of Task

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	9.531	2	4.765	1.909	0.150
Justification (J)	3.657	2	1.828	0.732	0.481
Timing of Choice (TC)	0.001	1	0.001	0.001	0.981
T x J	21.895	4	5.474	2.193	0.069
T x TC	2.852	2	1.426	0.571	0.565
J X TC	11.927	2	5.963	2.389	0.093
T x J x TC	20.944	4	5.236	2.098	0.081
Error	896.146	359	2.496		

TABLE 7-25
Effect of Trigger Stimulus, Justification, and Timing of Choice on Similarity of Mental Process

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	4.880	2	2.440	1.053	0.350
Justification (J)	2.121	2	1.060	0.457	0.634
Timing of Choice (TC)	0.001	1	0.001	0.000	0.987
T x J	12.161	4	3.040	1.311	0.265
T x TC	3.550	2	1.775	0.766	0.465
J X TC	14.771	2	7.386	3.186	0.043
T x J x TC	5.002	4	1.250	0.539	0.707
Error	827.611	357	2.318		

TABLE 7-26
Simple Effects Follow Up Tests:
Similarity of Mental Process

SOURCE	SS	DF	MS	F	P
Timing of Choice=Choice Commitment with Announcement					
Justification	3.368	2	1.684	0.691	0.503
Error	477.828	196	2.438		
Timing of Choice=Choice Announcement only-Control					
Justification	16.976	2	8.488	3.910	0.022
Error	375.569	173	2.171		

TABLE 7-27
Tukey HSD Tests for Similarity of Mental Process:
Matrix of Pairwise Comparison Probabilities

COND	MEAN	N	OUT/ CA	OUT/ CCWA	PROC/ CA	PROC/ CCWA	CONT/ CA	CONT/ CCWA
OUT/ CA	5.045	67	1.000					
OUT/ CCWA	5.545	66	0.367	1.000				
PROC/ CA	5.458	48	0.704	1.000	1.000			
PROC/ CCWA	5.552	58	0.388	1.000	1.000	1.000		
CONT/ CA	5.770	61	0.083	0.959	0.900	0.968	1.000	
CONT/ CCWA	5.280	75	0.953	0.914	0.991	0.916	0.493	1.000

Out = Outcome Justification
Proc = Process Justification
Cont = Justification Control
CA = Choice Announcement only-Control - Timing of Choice
CCWA = Choice Commitment with Announcement - Timing of Choice

TABLE 7-28
Effect of Trigger Stimulus, Justification, and Timing of Choice on Justification to Friends

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	1.131	2	0.565	0.180	0.834
Justification (J)	14.935	2	7.468	2.383	0.094
Timing of Choice (TC)	0.649	1	0.649	0.207	0.649
T x J	2.458	4	0.615	0.196	0.940
T x TC	3.024	2	1.512	0.483	0.618
J X TC	2.478	2	1.239	0.395	0.674
T x J x TC	2.332	4	0.583	0.186	0.946
Error	1106.201	353	3.134		

TABLE 7-29
Effect of Trigger Stimulus, Justification, and Timing of Choice on Friends Justify Choices

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	4.459	2	2.230	0.846	0.430
Justification (J)	13.988	2	6.994	2.655	0.072
Timing of Choice (TC)	1.075	1	1.075	0.408	0.523
T x J	1.004	4	0.251	0.095	0.984
T x TC	15.132	2	7.566	2.872	0.058
J X TC	1.375	2	0.688	0.261	0.770
T x J x TC	7.649	4	1.912	0.726	0.575
Error	929.872	353	2.634		

TABLE 7-30
Effect of Trigger Stimulus, Justification, and Timing of Choice on Justification for Choice

SOURCE	SS	DF	MS	F-RATIO	P
Trigger (T)	7.836	2	3.918	1.732	0.178
Justification (J)	14.638	2	7.319	3.236	0.041
Timing of Choice (TC)	1.035	1	1.035	0.458	0.499
T x J	15.676	4	3.919	1.733	0.142
T x TC	1.055	2	0.527	0.233	0.792
J X TC	4.200	2	2.100	0.929	0.396
T x J x TC	5.571	4	1.438	0.636	0.637
Error	798.353	353	2.262		

TABLE 7-31
Tukey HSD Tests for Justification for Choice:
Matrix of Pairwise Comparison Probabilities

CONDITION	MEAN	N	Outcome Just.	Process Just.	Control
Outcome	5.473	131	1.000		
Process	5.458	107	0.997	1.000	
Control	5.857	133	0.121	0.079	1.000

Figure 3-1
Rational Decision Process

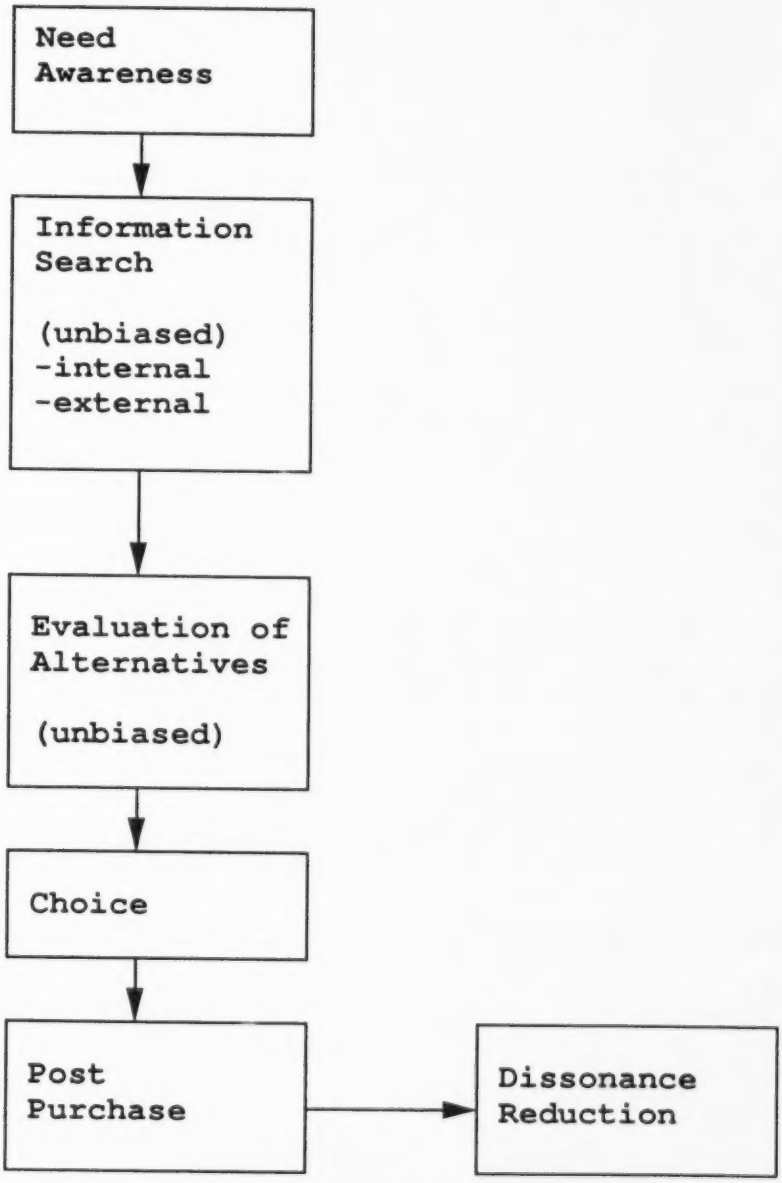


Figure 3-2
Rationalization of Choice Model

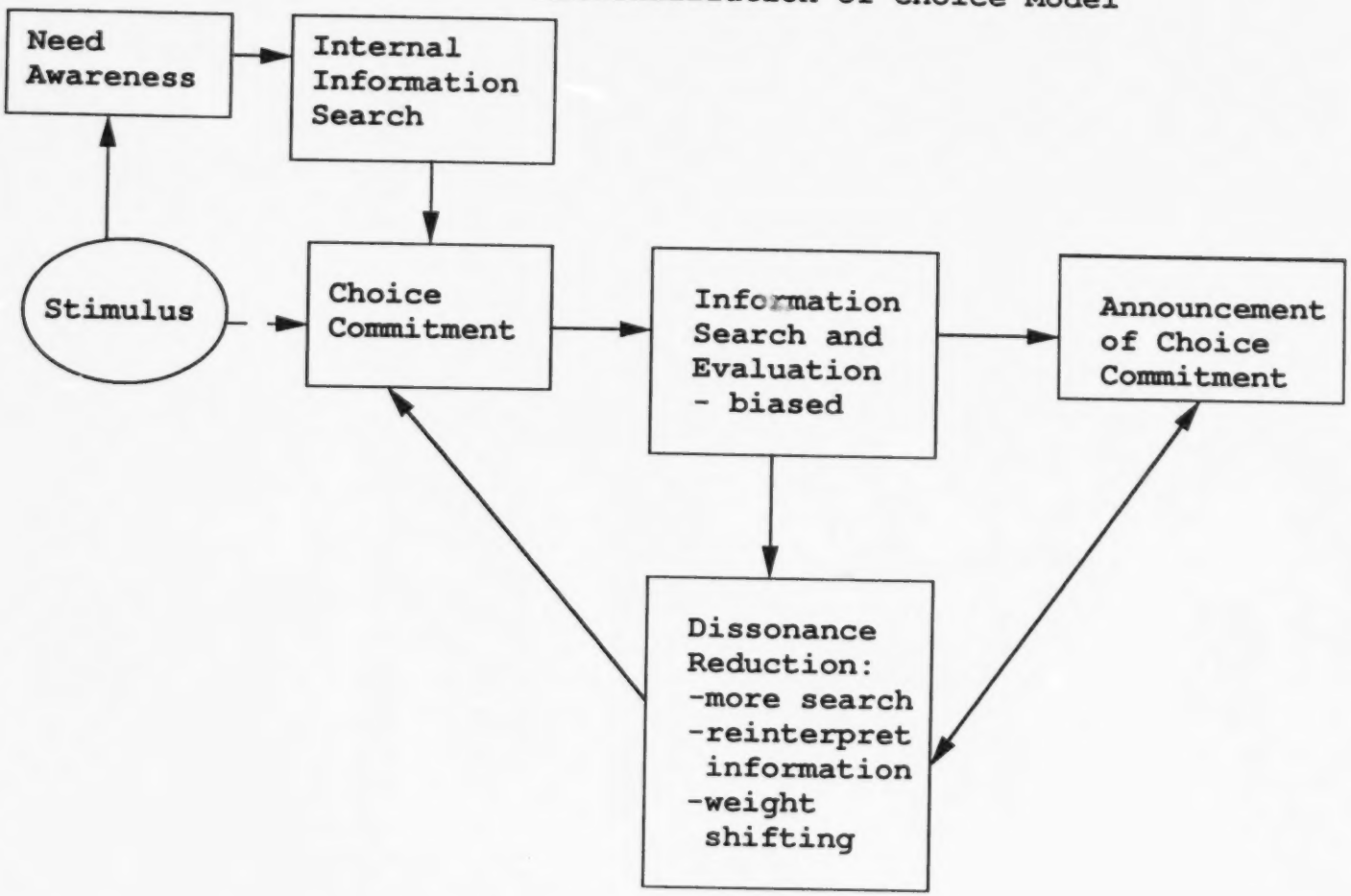


Figure 4-1

Experimental Procedure

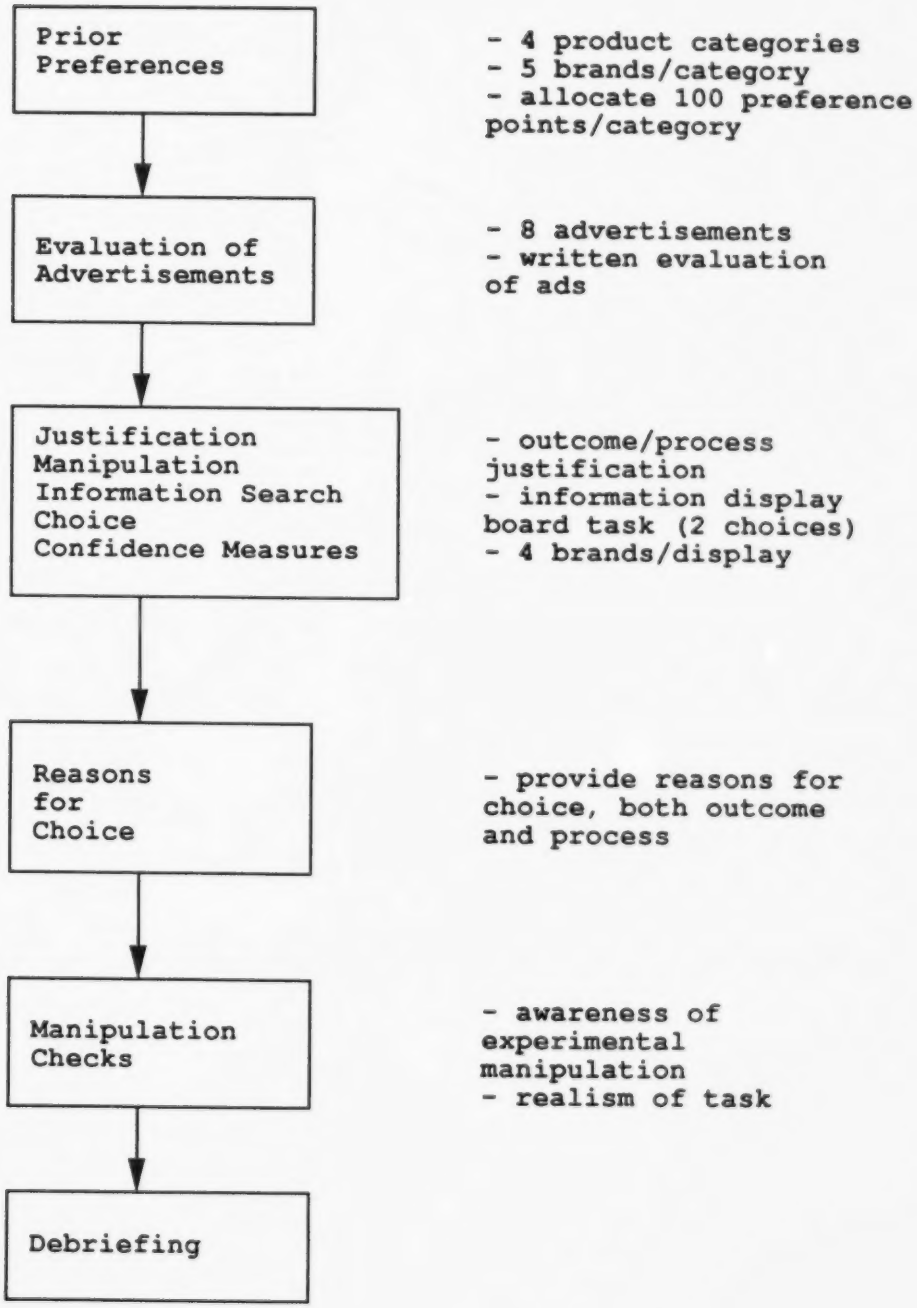

Prior Preferences
- 4 product categories
- 5 brands/category
- allocate 100 preference points/category
Evaluation of Advertisements
- 8 advertisements
- written evaluation of ads
Justification Manipulation Information Search Choice Confidence Measures
- outcome/process justification
- information display board task (2 choices)
- 4 brands/display
Reasons for Choice
- provide reasons for choice, both outcome and process
Manipulation Checks
- awareness of experimental manipulation
- realism of task
Debriefing

Figure 6-1
Hypothesis Testing

Market Survey - Information

The purpose of this survey is to learn about information that might be used to make a product choice. Please read the following scenario and answer the questions below. Thank you for your help in completing this questionnaire.

Scenario:

You have decided to purchase a VCR and have narrowed your choice down to 5 alternatives. You consider these 5 alternatives (listed below) to be approximately equal in their features. Before you make your choice from among these alternatives, you decide to check the repair history for VCRs reported in Consumer Reports. This is the information that you found:

Column #1	Column #2	Column #3
	# of Units Needing	
Brand Name	Repair	Average Repair Cost
Sanyo	1 in 6.5 units	$75
Sony	1 in 6 units	$110
Hitachi	1 in 4.5 units	$50
Panasonic	1 in 12 units	$95
Samsung	1 in 5.5 units	$80

(1) What brand would you choose? (please circle your choice)

Sanyo Sony Hitachi Panasonic Samsung

(2) Please read the following statements and put an "X" beside the ONE statement which most closely matches the information you used to make your choice.

____ I ignored the repair history information and chose my preferred brand (column 1 information only.

____ I examined the repair information only for the one brand that I preferred (one row of information).

____ I examined the repair information for 2 or more brands, but not all brands (2 or more rows of information).

____ I examined all the repair information for all brands (all the repair information that is provided above, columns 1, 2 and 3).

____ I examined the number of units requiring repair for all brands (columns 1 and 2 only).

____ I examined the repair costs for all brands (columns 1 and 3 only).

Figure 6-2
Outcome Justification

Reasons for Choice - Market Survey (VCRs)

The purpose of this survey is to learn what information is used when explaining a product choice to someone close to you (e.g. a friend, spouse, parent or relative). Please read the following scenario and answer the questions below. Thank you for your help in completing this questionnaire.

Scenario:

You have decided to purchase a VCR. Your best friend considers himself (herself) to be very knowledgeable about TV, stereo, and computer equipment and you anticipate having to justify your choice to your friend. In particular, you know that your friend will specifically ask you what reasons made you decide upon a particular alternative. For example, when you purchased an IBM PS/2 computer at the beginning of the term, you made a note of all the features on which your computer was as good or better than any others that you considered so that you could justify your choice to your friend.

The following alternatives of VCRs are available to you:
(Note: all alternatives include 4-video heads, hi-fi stereo, 181 channel capability, remote control and on-screen programming.)

Hitachi
- $430
- 8 event/1 yr. timer
- 1 yr. warranty
- VCR Plus

Sony
- $499
- 6 event/1 month timer
- 3 yr. warranty
- auto head cleaner

Panasonic
- $450
- 8 event/1 yr. timer
- 1 yr. warranty
- VCR Plus
- auto head cleaner

Samsung
- $399
- 8 event/1 yr. timer
- 1 yr. warranty
- auto head cleaner

(1) Which alternative would you choose? (please circle)
Hitachi Sony Panasonic Samsung

(2) In describing your choice, what reasons would you give to your friend?

_____

_____

Figure 6-3
Process Justification

Choice Determination - Market Survey (VCRs)

The purpose of this survey is to learn what information is used when explaining a product choice to someone close to you (e.g. a friend, spouse, parent or relative). Please read the following scenario and answer the questions below. Thank you for your help in completing this questionnaire.

Scenario:

You have decided to purchase a VCR. Your best friend considers himself (herself) to be very knowledgeable about TV, stereo, and computer equipment and you anticipate having to explain to your friend how you determined your choice. You know that when your friend chooses a particular alternative, he (she) goes over the attributes or features available and considers the importance of each attribute before deciding upon a particular alternative. For example, when you purchased an IBM PS/2 computer at the beginning of the term, you made a note of how you went through each attribute on all of the computers that you considered so that you could justify how you determined your choice to your friend.

The following alternatives of VCRs are available to you:
(Note: all alternatives include 4-video heads, hi-fi stereo, 181 channel capability, remote control and on-screen programming.)

Hitachi
- $430
- 8 event/1 yr. timer
- 1 yr. warranty
- VCR Plus

Sony
- $499
- 6 event/1 month timer
- 3 yr. warranty
- auto head cleaner

Panasonic
- $450
- 8 event/1 yr. timer
- 1 yr. warranty
- VCR Plus
- auto head cleaner

Samsung
- $399
- 8 event/1 yr. timer
- 1 yr. warranty
- auto head cleaner

(1) Which alternative would you choose? (please circle)
Hitachi Sony Panasonic Samsung

(2) In describing your choice, what reasons would you give to your friend?

Figure 6-4
Justification Control

Product Preference - Market Survey (VCRs)

The purpose of this survey is to learn about your preference for a particular product and to learn what information is used when determining a particular product choice. Please read the following scenario and answer the questions below. Thank you for your help in completing this questionnaire.

Scenario:

You have decided to purchase a VCR. You have spent some time reading the ads for VCRs in the newspaper, and you have visited some of the specialty stores in Edmonton to examine the VCRs available.

You have found that the following alternatives of VCRs are available to you:

(Note: all alternatives include 4-video heads, hi-fi stereo, 181 channel capability, remote control and on-screen programming.)

Hitachi
- $430
- 8 event/1 yr. timer
- 1 yr. warranty
- VCR Plus

Sony
- $499
- 6 event/1 month timer
- 3 yr. warranty
- auto head cleaner

Panasonic
- $450
- 8 event/1 yr. timer
- 1 yr. warranty
- VCR Plus
- auto head cleaner

Samsung
- $399
- 8 event/1 yr. timer
- 1 yr. warranty
- auto head cleaner

(1) Which alternative would you choose? (please circle)

Hitachi Sony Panasonic Samsung

(2) Please explain how you made your choice.

Figure 7-1

Experimental Design and Number of Subjects Per Cell

3 x 3 x 2 Experimental Design:
Trigger x Justification x Timing of Choice

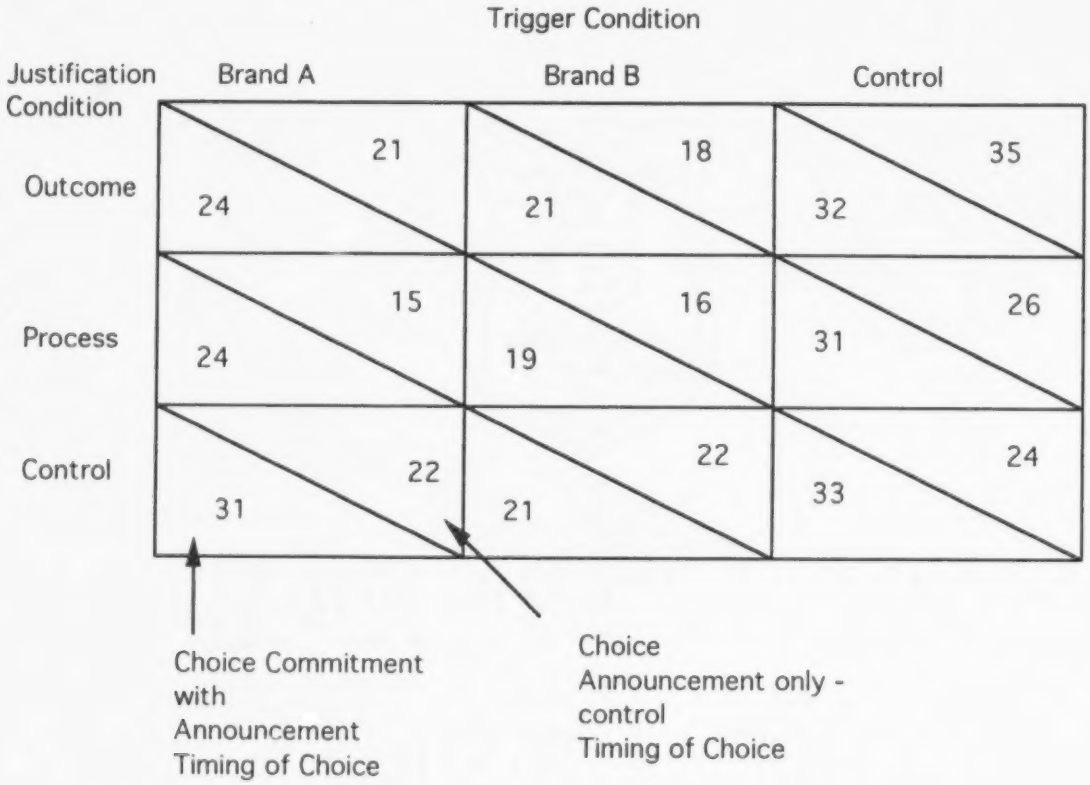


Figure 7-2
Total Amount of Search by Condition

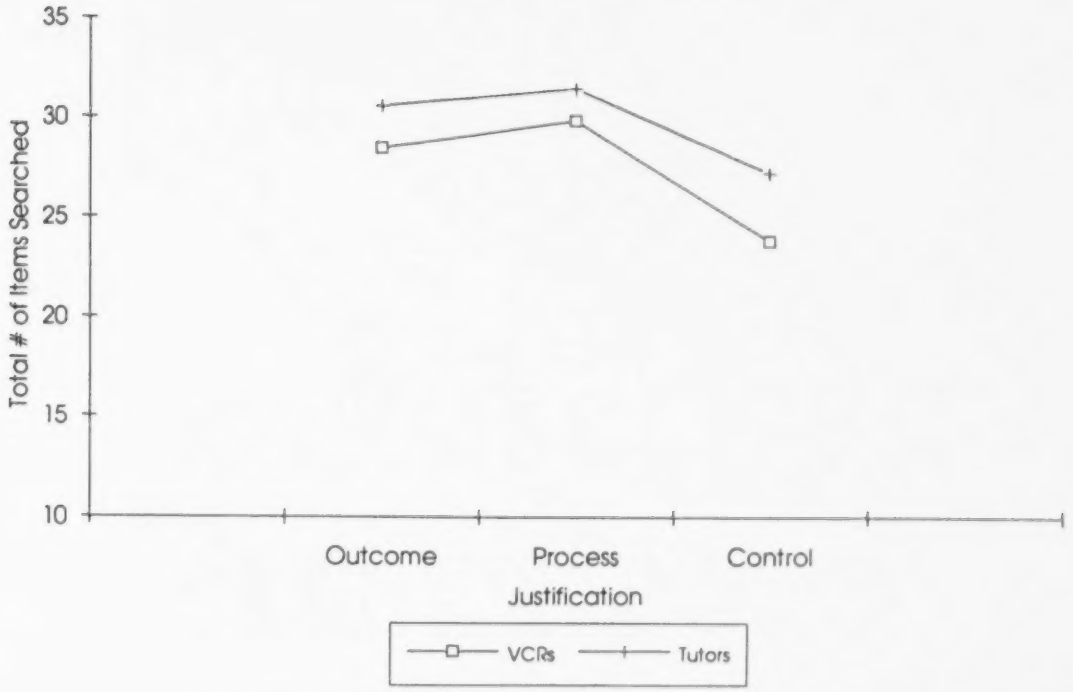


Figure 7-3
Justification by Timing of Choice-VCRs

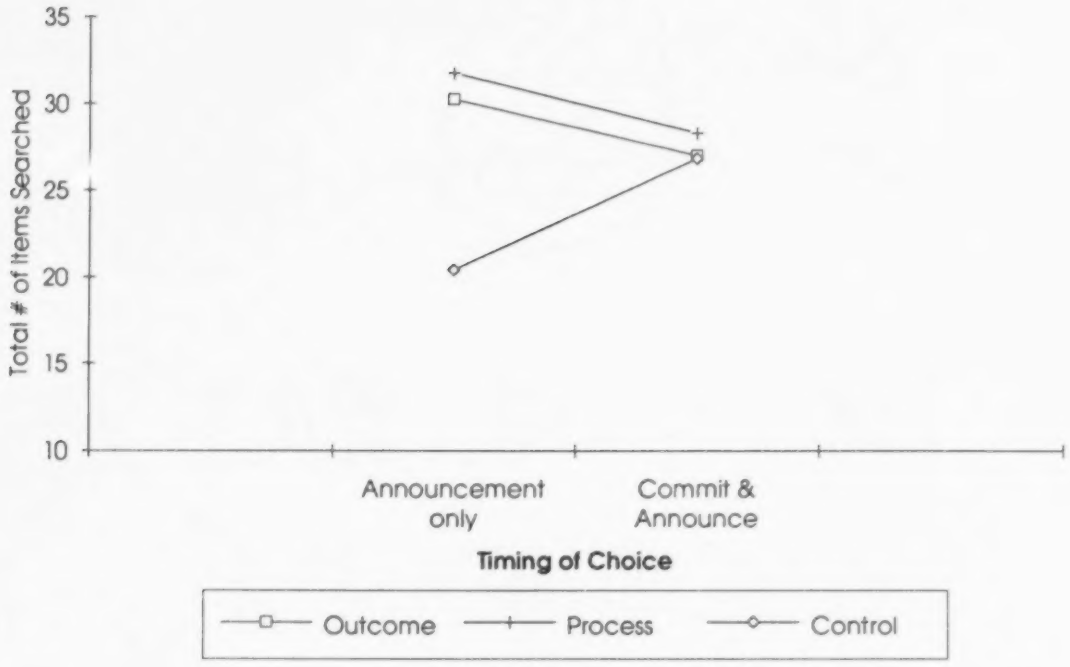


Figure 7-4
Justification by Timing of Choice-Tutor

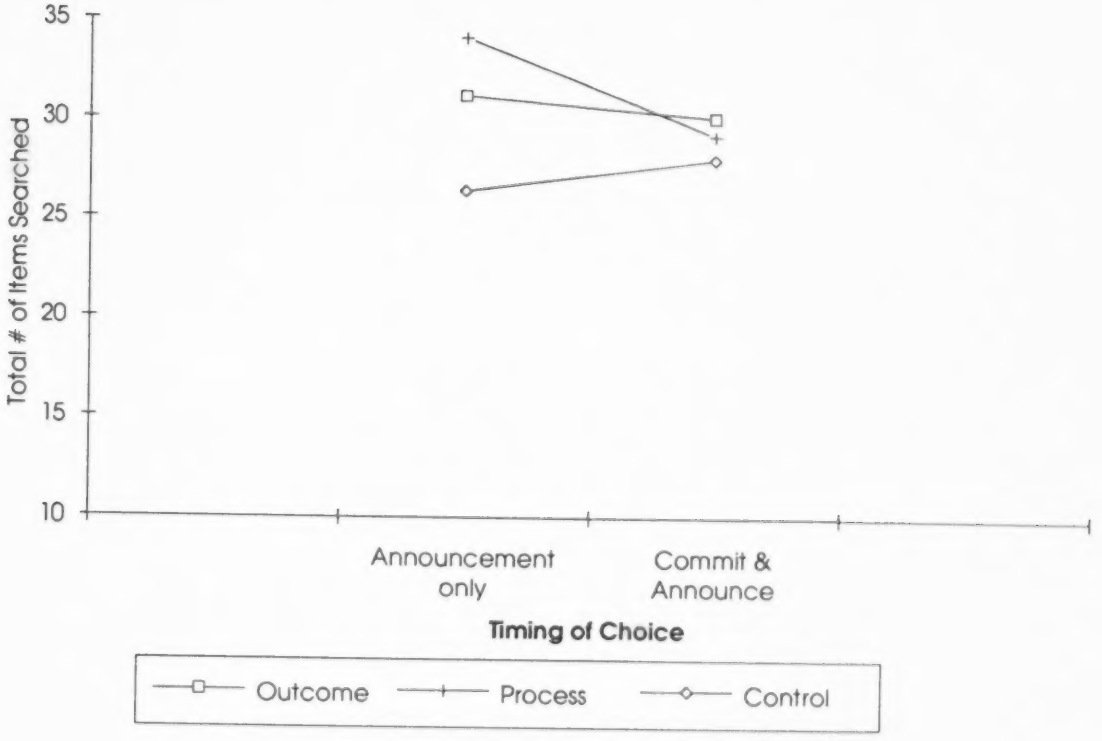


Figure 7-5
Justification by Trigger - Tutors

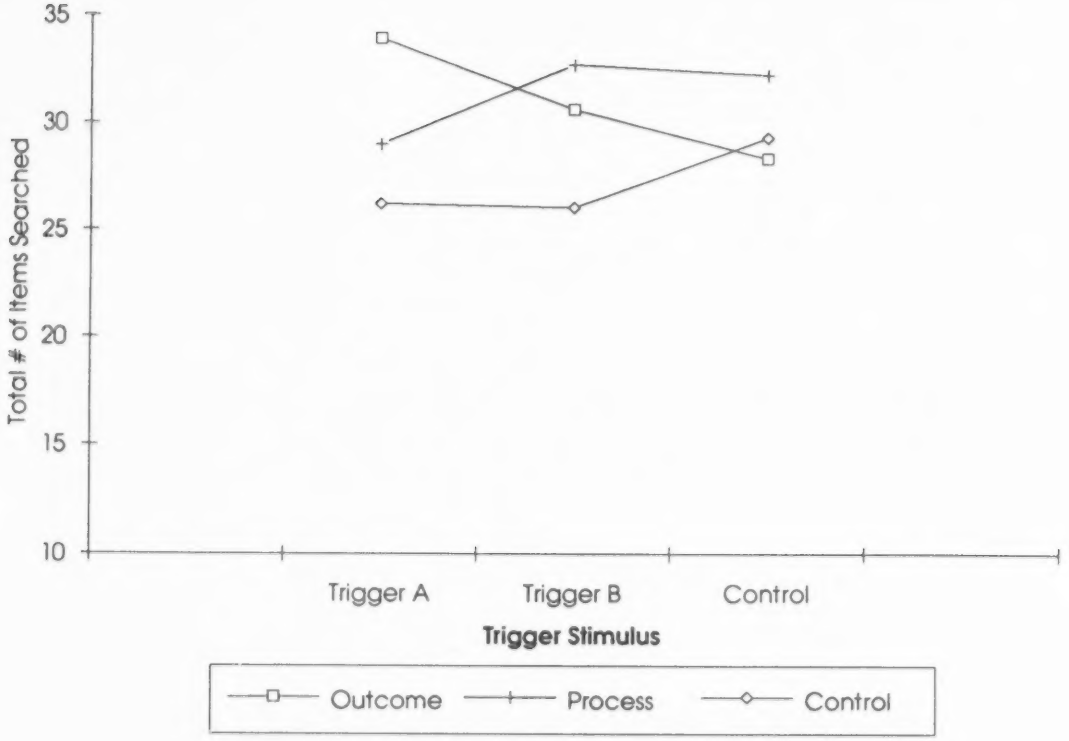


Figure 7-6
Confirmatory Search - Justification

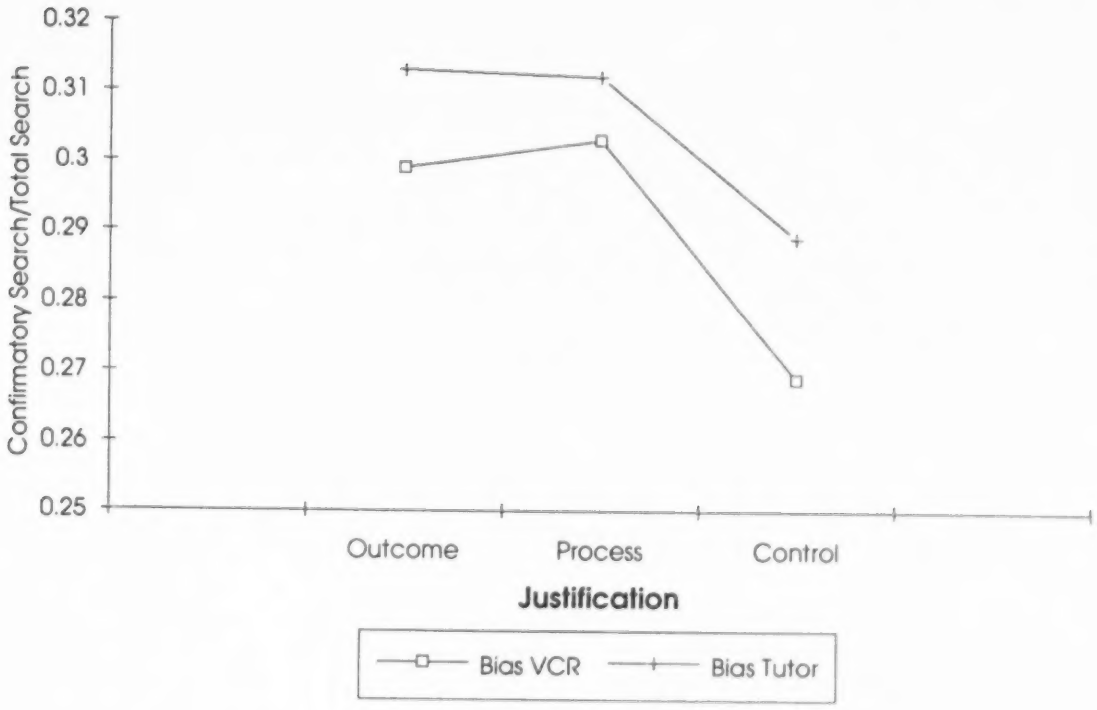


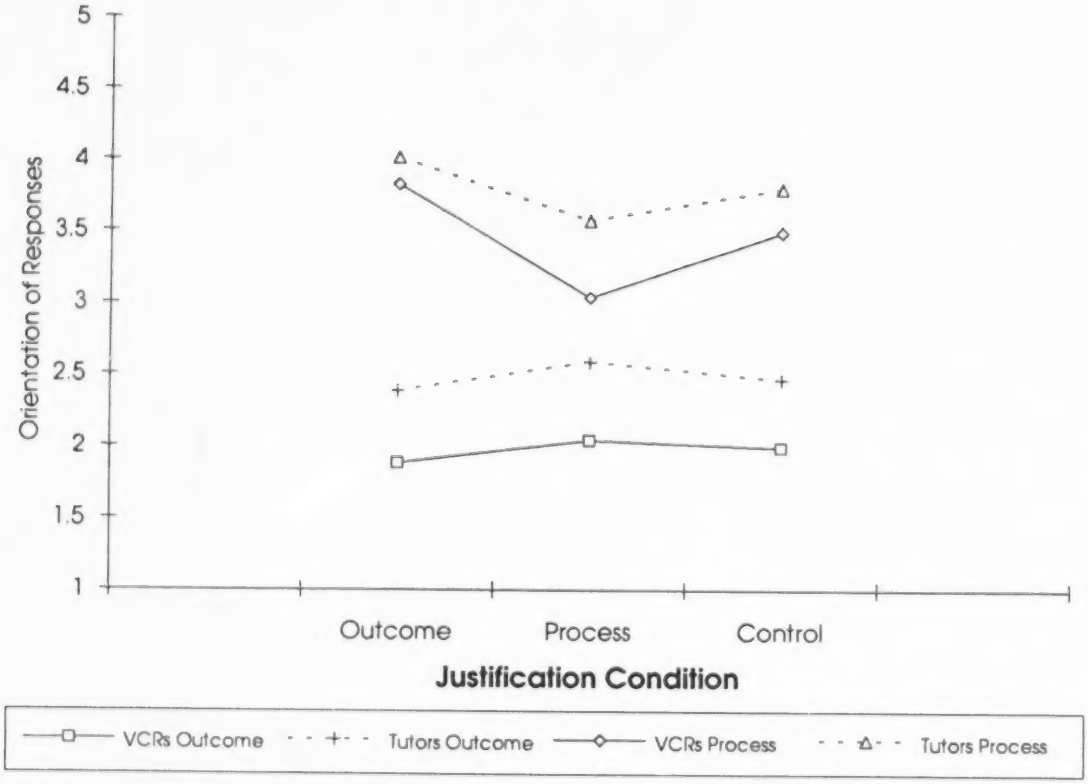
FIGURE 8-1
Propositions of Rationalization of Choice Model Results

Proposition 1: The choice commitment occurs early in the decision process.	Supported
Proposition 2: A stimulus triggers the choice commitment.	Supported
Proposition 3: For a stimulus to trigger a choice commitment, the stimulus must be attended to and elaborated on by the consumer.	Included in evaluation task
Proposition 4: After the choice commitment is made, the individual searches for additional information to support or justify the choice.	Supported
Proposition 5: The amount of external information search depends primarily upon the amount of search required to reach a comfort threshold with the choice. The threshold level depends upon the knowledge and experience of the individual; the amount of perceived risk of the purchase such as financial risk and social risk; and situational constraints such as time and availability of information.	Not tested
Proposition 6: Interpretation of information depends upon the initial choice commitment and upon the nature of the information searched.	Not tested
Proposition 7: Attribute importance depends upon the choice commitment: a. choice commitment: positive attributes will be given greater weight; negative attributes will be discounted b. other alternatives: positive attributes will be discounted; negative attributes	Not tested

will be given greater weight.

Proposition 8: The amount of external information search will increase if the individual anticipates having to justify the choice to others such as a superior, spouse or peer.	Supported
Proposition 9: If an individual anticipates having to justify the decision process used to others such as a spouse, superior or peers, a rational decision process will be used.	Not supported
Proposition 10: In decisions involving high financial or social risk, the amount of perceived risk involved in the decision and the individual's tolerance to risk (e.g. risk averse or risk neutral), will interact to determine whether the individual will use a rational or rationalization decision process.	Not tested
Proposition 11: In decisions for which the individual has low knowledge and/or experience, the type of decision (e.g. complex or low involvement) and the personal characteristics of the individual (e.g. risk averse or risk neutral), will interact to determine whether the individual will use a rational or rationalization decision process.	Not tested
Proposition 12: Information that disconfirms the choice commitment may result in a change to the choice commitment depending upon: a. the strength of commitment in the initial choice, b. the amount and strength of disconfirming evidence relative to confirming evidence, c. the credibility of the source of disconfirming evidence, relative to confirming evidence.	Not tested

Figure 8-2
Justification Manipulation



Literature Cited

Abelson, Robert P. and Ariel Levi (1985), "Decision Making and Decision Theory," in *The Handbook of Social Psychology*, Vol.1, G. Lindzey and E. Aronson, eds. New York: Random House.

Anderson, Norman H. (1974), "Cognitive Algebra: Integration Theory Applied to Social Attribution," in L. Berkowitz (ed.) *Advances in Experimental Social Psychology* (Vol. 7)., New York: Academic Press.

Anderson, R.C. and J. W. Pichert (1978), "Recall of Previously Unrecallable Information Following a Shift in Perspective," *Journal of Verbal and Verbal Behavior*, 17, 1-12.

Asch, S.E. (1946), "Forming Impressions of Personality," *Journal of Abnormal and Social Psychology*, 41, 258-290.

Bacon, Francis (1960/1620), *The New Organon and Related Writings*, New York: Liberal Arts Press.

Bearden, William O. and Randall L. Rose (1990), "Attention to Social Comparison Information: An Individual Difference Factor Affecting Consumer Conformity," *Journal of Consumer Research,* 16 (March), 461-471.

Bell, David E. (1982), "Regret in Decision Making Under Uncertainty," *Operations Research*, 30 (5), 961-981.

Bettman, James R. (1979), *An Information Processing Theory of Consumer Choice*, Reading, MA: Addison-Wesley.

_____ and M. Sujan (1987), "Effects of Framing on Evaluation of Comparable and Noncomparable Alternatives by Expert and Novice Consumers," *Journal of Consumer Research*, 14 (September), 141-154.

Bhargava, Mukesh (1989), "Context and Sequence Effects on Choice Behavior," unpublished dissertation, University of Texas at Austin.

Bransford, J. D. and M.K. Johnson (1972), "Contextual Prerequisites for Understanding: Some Investigations of Comprehension and Recall," *Journal of Verbal Learning and Verbal Behavior*, 11, 717-726.

_____, and _____ (1973), "Considerations of Some Problems of Comprehension," in W. G. Chase (ed.) *Visual Information Processing*, San Diego, CA: Academic Press.

Brucks, Merrie (1985), "The Effects of Product Class Knowledge on Information Search Behavior," *Journal of Consumer Research*, 12 (June), 1-16.

Carroll, John S. and Eric J. Johnson (1990), *Decision Research: A Field Guide*. Newbury Park, CA: Sage Publications.

Chapman, L. J. and J. P. Chapman (1967),"Genesis of Popular but Erroneous Psychodiagnostic Observations," *Journal of Abnormal Psychology*, 73, 193-204.

_____ and _____ (1969), "Illusory Correlation as an Obstacle to the Use of Valid Psychodiagnostic Signs," *Journal of Abnormal Psychology*, 74, 271-280.

Dawes, Robyn M. and Bernard Corrigan (1974), "Linear Models in Decision Making," *Psychological Bulletin*, 8 (2), 95-106.

_____ (1975), "Shallow Psychology," in J.S. Carroll and J.W. Payne (eds.), *Cognition and Social Behavior*. Hillsdale, N.J.: Erlbaum.

Deighton, John (1984), "The Interaction of Advertising and Evidence," *Journal of Consumer Research*, 11 (December), 763-770.

Dellarosa, Denise and Lyle E. Bourne, Jr. (1984), "Decisions and Memory: Differential Retrievability of Consistent and Contradictory Evidence," *Journal of Verbal Learning and Verbal Behavior*, 23, 669-682.

Duncan, Calvin P. and Richard W. Olshavsky (1982), "External Search: The Role of Consumer Beliefs," *Journal of Marketing Research*, 19 (February) 32-43.

Einhorn, Hillel J. and Robin M. Hogarth (1978), "Confidence in Judgment: Persistence of the Illusion of Validity," *Psychological Review*, 85, 395-416.

_____, and Robin M. Hogarth (1981), "Behavioral Decision Theory: Processes of Judgment and Choice," *Annual Review of Psychology*, 32, 53-88.

Estes, William K. (1976), "The Cognitive Side of Probability Learning," *Psychological Review*, 83 (1), 37-64.

Festinger, Leon (1957), *A Theory of Cognitive Dissonance*. Evanston, IL:Row,Peterson.

Fischhoff, Baruch and R. Beyth-Marom (1983), "Hypothesis Evaluation from a Bayesian Perspective," *Psychological Review*, 90, 239-260.

_____, B. Goitein and Z. Shapira (1983), "Subjective Expected Utility: A Model of Decision Making," in R.W. Scholz (ed.) *Decision Making Under Uncertainty*, Amsterdam: North Holland.

_____, Paul Slovic and Sarah Lichtenstein (1978), "Fault Trees: Sensitivity of Estimated Failure Probabilities to Problem Representation," *Journal of Experimental Psychology: Human Perception and Performance*, 4, 330-344.

Fiske, Susan T. (1980), "Attention and Weight in Person Perception: The Impact of Negative and Extreme Behavior," *Journal of Personality and Social Psychology*, 38 (6), 889-906.

Frey, Dieter and Marita Rosch (1984), "Information Seeking After Decisions: The Roles of Novelty of Information and Decision Reversibility," *Personality and Social Psychology Bulletin*, 10, (1), 91-98.

Gettys, C. F. and S. D. Fisher (1979), "Hypothesis Plausibility and Hypothesis Generation," *Organizational Behavior and Human Performance*, 24, 93-110.

_____, T. Mehle and S. D. Fisher (1986), "Plausibility Assessments in Hypothesis Generation," *Organizational Behavior and Human Decision Processes*, 37, 14-33.

Gibbins, Michael (1984), "Propositions about the Psychology of Professional Judgment in Public Accounting," *Journal of Accounting Research*, 22 (Spring), 103-125.

Green, Paul E. and V. Srinivasan (1978), "Conjoint Analysis in Consumer Research: Issues and Outlook," *Journal of Consumer Research*, 5, 103-123.

Greenwald, Anthony G. and Clark Leavitt (1984), "Audience Involvement in Advertising: Four Levels," *Journal of Consumer Research*, 11 (June), 581-592.

Hall, Calvin S. and Gardner Lindzey (1978), *Theories of Personality*, New York: John Wiley.

Herr, Paul, Steven J. Sherman and Russell H. Fazio (1982), "On the Consequences of Priming: Assimilation and Contrast Effects," *Journal of Experimental Social Psychology*, 19, 323-340.

Hoch, Stephen J. and John Deighton (1989), "Managing What Consumers Learn from Experience," *Journal of Marketing*, 53 (April), 1-20.

_____ and George F. Loewenstein (1991), "Time Inconsistent Preferences and Consumer Self-Control," *Journal of Consumer Research*, 17 (March), 492-507.

Howard, John A. (1977), *Consumer Behavior: Application and Theory*. New York: John Wiley & Sons, Inc.

Hughes, Marie Adele and Dennis E. Garrett (1990), "Intercoder Reliability Estimation Approaches in Marketing: A Generalizability Theory Framework for Quantitative Data," *Journal of Marketing Research*, 27 (May), 185-195.

Johnson, Eric, John S. Payne and James R. Bettman (1988), "Information Displays and Preference Reversals," *Organizational Behavior and Human Decision Processes*, 42, 1-21.

Johnson, Michael D. (1984), "Consumer Choice Strategies for Comparing Noncomparable Alternatives," *Journal of Consumer Research*, 11 (December), 741-753.

Johnson, Richard D. (1987), "Making Judgments When Information is Missing: Inferences, Biases, and Framing Effects," *Acta Psychologica 66*, 69-82.

Kahneman, Daniel and Amos Tversky (1973), "On the Psychology of Prediction," *Psychological Review*, 80, 237-251.

_____, Paul Slovic and Amos Tversky (1982), *Judgment under Uncertainty: Heuristics and Biases*. Cambridge: Cambridge University Press.

_____ and Amos Tversky (1979), "Prospect Theory: An Analysis of Decision Under Risk," Econometrica, 47 (July), 263-291.

_____ and _____ (1984), "Choices, Values, and Frames," *American Psychologist*, 39, 341-350.

Klayman, Joshua and Young-Won Ha (1987), "Confirmation, Disconfirmation and Information in Hypothesis Testing," *Psychological Review*, 97 (2), 211-228.

Koehler, Derek J. (1991), "Explanation, Imagination and Confidence in Judgment," *Psychological Bulletin*, 110 (3), 499-519.

Lord, C. G., M. R. Lepper and Lee Ross (1979), "Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence," *Journal of Personality and Social Psychology*, 37, 2098-2110.

Louviere, Jordan J. (1988), *Analyzing Decision Making: Metric Conjoint Analysis*, Newbury Park, CA: Sage Publications.

Lynch, John G., Howard Marmorstein and Michael F. Weigold (1988), "Choices from Sets Including Remembered Brands: Use of Recalled Attributes and Prior Overall Evaluations," *Journal of Consumer Research*, 15 (September), 169-184.

_____ and Thomas K. Srull (1982) "Memory and Attentional Factors in Consumer Choice: Concepts and Research Methods," *Journal of Consumer Research*, 9 (June), 18-37.

McGill, Ann L. and Punam Anand (1989), "The Effect of Vivid Attributes on the Evaluation of Alternatives: The Role of Differential Attention and Cognitive Elaboration," *Journal of Consumer Research*, 16 (September), 188-196.

Misra, Shekhar (1992), "Is Conventional Debriefing Adequate? An Ethical Issue in Consumer Research," *Journal of the Academy of Marketing Science*, 20 (3), 269-273.

Mitchell, Andrew (1983), "The Effects of Visual and Emotional Advertising: An Information-Processing Approach," in *Advertising and Consumer Psychology*, L.Percy and A. Woodside, eds. Lexington, MA: Lexington Books, 197-217.

Mitchell, Terence R. and Lee Roy Beach (1990), "'... Do I Love Thee? Let Me Count...' Toward an Understanding of Intuitive and Automatic Decision Making," *Organizational Behavior and Human Decision Processes*, 47, 1-20.

Mowen, John C. (1987), *Consumer Behavior*, New York: MacMillan.

Newell, Alan and Herbert Simon (1972), *Human Problem Solving,* Englewood Cliffs, N.J.: Prentice-Hall.

Nisbett, Richard E. and Lee Ross (1980), *Human Inference: Strategies and Shortcomings of Social Judgment.* Englewood Cliffs, N.J.: Prentice-Hall.

_____ and T. D. Wilson (1977), "Telling More than We Can Know: Verbal Reports on Mental Processes," *Psychological Review*, 8, 231-259.

Olson, Jerry C. and Thomas J. Reynolds (1983), "Understanding Consumers' Cognitive Structures: Implications for Advertising Strategy," in *Advertising and Consumer Psychology*, L. Percy and A. Woodside, eds. Lexington, MA: Lexington Books, 77-90.

Park, C. Whan and Daniel C. Smith (1989), "Product-Level Choice: A Top-Down or Bottom-Up Process?" *Journal of Consumer Research*, 16 (December), 289-299.

Payne, John W. (1982), "Contingent Decision Behavior," *Psychological Bulletin*, 92 (2), 382-402.

_____, James R. Bettman and Eric J. Johnson (1988), "Adaptive Strategy Selection in Decision Making," *Journal of Experimental Psychology*, 14, 534-552.

Petty, Richard E., John T. Cacioppo, and David W. Schumann (1983), "Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement," *Journal of Consumer Research*, 10 (September), 135-146.

Plato (1942), *Five Great Dialogues.* New York: Black.

Posner, Michael I. and C.R.R. Snyder (1975), "Attention and Cognitive Control," in R.L.Solso, (ed.), *Information Processing and Cognition: The Loyola Symposium.* Hillsdale, NJ: Erlbaum.

Rentz, Joseph O. (1987), "Generalizability Theory: A Comprehensive Method for Assessing and Improving the Dependability of Marketing Measures," *Journal of Marketing Research*, 24 (February), 19-28.

Rook, Dennis W. (1987), "The Buying Impulse," *Journal of Consumer Research*, 14 (September), 189-199.

Rosen, Dennis L. and Richard W. Olshavsky (1987), "The Dual Role of Informational Social Influence: Implications for Marketing Management," *Journal of Business Research*, 15, 123-144.

Ross, Lee, M. R. Lepper and M. Hubbard (1975), "Perseverance in Self-Perception and Social Perception: Biased Attribution Processes in the Debriefing Paradigm," *Journal of Personality and Social Psychology*, 32, 880-892.

_____ and Richard E. Nisbett (1991), *The Person and the Situation: Perspectives of Social Psychology*. New York: McGraw-Hill.

Schlenker, Barry (1980), *Impression Management: The Self-Concept, Social Identity and Interpersonal Relations*, Belmont, CA: Brooks-Cole.

Schneider, W. and R. M. Shiffren (1977), "Controlled and Automatic Human Information Process: I. Detection, Search and Attention," *Psychological Review*, 84, 1-66.

Selnes, Fred and Sigurd Villads Troye (1989), "Buying Expertise, Information Search, and Problem Solving," *Journal of Economic Psychology*, 10, 411-428.

Sentis, Keith and Hazel Markus (1983), "Brand Personality and Self," in J. Olson and K. Sentis, (eds.), *Advertising and Consumer Psychology*, Vol. 3. New York: Praeger, 132-147.

Shaklee, H. and Baruch Fischhoff (1982), "Strategies of Information Search in Causal Analysis," *Memory and Cognition*, 10, 520-530.

Shugan, Steven (1980), "The Cost of Thinking," *Journal of Consumer Research*, 7 (2),99-111.

Simon, Herbert A. (1955), "A Behavioral Model of Rational Choice," *Quarterly Journal of Economics*, 69, 99-118.

_____ (1978), "Rationality as Process and Product of Thought," American Economic Review: Proceedings 68:1-16. Reprinted in *Models of Bounded Rationality*. 2 Vols. Cambridge, Mass.: MIT Press, 1982.

_____ (1986), "Rationality in Psychology and Economics," *Journal of Business*, 59 (4), S209-S224.

Simonson, Itamar (1989), "Choice Based on Reasons: The Case of Attraction and Compromise Effects," *Journal of Consumer Research*, 16 (September), 158-174.

_____ (1992), "The Influence of Anticipating Regret and Responsibility on Purchase Decisions," *Journal of Consumer Research*, 19 (June), 105-118.

_____, Joel Huber and John Payne (1988), "The Relationship Between Prior Brand Knowledge and Information Acquisition Order," *Journal of Consumer Research*, 14 (March), 566-578.

Skov, R. B. and S. J. Sherman (1986), "Information-Gathering Processes: Diagnosticity, Hypothesis Confirmatory Strategies and Perceived Hypothesis Confirmation," *Journal of Experimental Social Psychology*, 22, 93-121.

Slovic, Paul, Baruch Fischhoff, and Sarah Lichtenstein (1977), "Behavioral Decision Theory," *Annual Review of Psychology*, 28, 1-39.

_____, Sarah Lichtenstein and Baruch Fischhoff (1988), "Decision Making," in *Stevens' Handbook of Experimental Psychology*, Vol. 2: Learning and Cognition. R.D. Atkinson, R. J. Herrnstein, G. Lindzey and R.D. Luce, eds. New York: Wiley.

Snyder, Mark and William B. Swann, Jr. (1978a), "Behavioral Confirmation in Social Interaction: From Social Perception to Social Reality," *Journal of Experimental Social Psychology*, 14, 148-162.

_____ and _____ (1978b), "Hypothesis-Testing in Social Interaction," *Journal of Personality and Social Psychology*, 36, 1202-1212.

Stigler, George (1961), "The Economics of Information," *Journal of Political Economy*, 69 (June), 213-225.

Taylor, Shelley and Susan T. Fiske (1978), "Salience, Attention and Attribution: Top of the Head Phenomena," in L. Berkowitz (ed.), *Advances in Experimental Social Psychology* (Vol. 11), New York: Academic Press.

Tversky, Amos and Daniel Kahneman (1974), "Judgment Under Uncertainty: Heuristics and Biases," *Science*, 185, 1124-1131.

_____ and _____ (1981), "The Framing of Decisions and the Rationality of Choice," *Science*, 211, 453-458.

_____ and _____ (1986), "Rational Choice and the Framing of Decisions," *Journal of Business*, 59, 251-277.

Von Neumann, J. and O. Morgenstern (1944), *Theory of Games and Economic Behavior.* Princeton University Press.

Wason, P. C. (1960), "On the Failure to Eliminate Hypotheses in a Conceptual Task," *Quarterly Journal of Experimental Psychology*, 12, 129-140.

White, P. Joan, Richard D. Johnson and Jordan J. Louviere (1992), "The Effect of Attribute Range and Variance on Weight Estimates," working paper, University of Alberta.

Hello!

Thank you for participating in this interactive survey. The task is very simple and we hope you will find it fun to do. We are interested in what you would look for when shopping for electronic equipment.

Click here when you are finished reading this page.

This survey consists of 5 sections and will take you approximately 45 minutes to complete. Each section is different. You will be given instructions at the beginning of each section.

Click here when you are finished reading this page.

INSTRUCTIONS

SECTION 1

THIS IS IMPORTANT INFORMATION!

The purpose of this section is to learn about your preferences for particular products. Specifically, we want you to allocate 100 points among the alternatives in a product grouping to indicate how much or how little you prefer each alternative.

For example, imagine that you have decided to purchase a notebook computer and have the choice of 5 alternatives (IBM, Toshiba, Macintosh, Sanyo and Pro-Spec). If you assign a score of 50 to IBM and a score of 50 to Toshiba, it would imply that you prefer IBM and Toshiba equally, while you will not consider the other brands. On the other hand, if you give a score of 100 to Macintosh, it would imply that a Macintosh is the only computer you would consider.

Go Back to Previous Screen

Tell Me More

SECTION 1

You will be asked for your preferences for 4 different product categories. Each product in a category will be described by a brand name, price and specific features.

To indicate your preferences, move the cursor (mouse) to the box beside each brand and type in a number (between 0 and 100) to indicate the amount of your preference for that particular brand. Please be sure that your preferences add up to 100 for all brands within each category.

Go Back to Previous Screen

Tell Me More

SECTION 1

You will be asked your preferences for one product category followed by some general questions about that product category.

After you have completed these general questions, you will move on to indicate your preferences for the brands in another product category.

Go Back to Previous Screen

Tell Me More

Product Category # 1

SECTION 1

PORTABLE CD PLAYER - "Discman" - Type

0	RCA, $160, 21-track memory, intro scan and repeat function, headphones, AC-DC converter
0	Panasonic, $180, 24-track memory, MASH, XBS AC adapter, headphones
0	Sony, $188, 22-track memory, music search, headphones, repeat function, AC adapter
0	Magnavox, $139, 20-track memory, headphones, AC-DC adapter, Bass boost
0	Kenwood, $196, 20-track memory, AC adapter, rechargeable batteries, A1 sound processor

Total Score = 0

Continue

Questions about Portable CD players

SECTION 1

Instructions: Please move the cursor (mouse) and click on the appropiate response or provide a brand name or product name, as required. Use the mouse to move from question to question.

Do you own a portable CD? ☐ Yes ☐ No

If yes, what is the brand name. Select as many as appropriate.

☐ Aiwa	☐ Magnavox	☐ Sanyo
☐ Craig	☐ Panasonic	☐ Sony
☐ Kenwood	☐ Philips	☐ Other

If you make a mistake, click on the brand name again to erase the check.

How often do you use your portable CD player?

- ☐ **Daily**
- ☐ **3 times per week**
- ☐ **Once per week**
- ☐ **Seldom**
- ☐ **Never**

Continue

Product Category # 2

SECTION 1

PORTABLE STEREO
(all alternatives include: AM/FM CD stereo cassette recorder)

0	RCA, $180, 3-band equalizer, 2-way 4-speaker system, built-in CD storage
0	Sony, $260, dual cassette, high-speed dubbing, 5-band equalizer, detachable 2-way speakers
0	Panasonic, $250, XBS extra Bass system, digital synthesized tuner
0	Craig, $110, Bass boost, AC/DC operation, built-in microphone
0	Sharp, $250, dual cassette, detachable 2-way speakers, high speed dubbing

Total Score = 0

Continue

Questions about Portable Stereos

SECTION 1

Instructions: Please move the cursor (mouse) and click on the appropiate response or provide a brand name or product name, as required. Use the mouse to move from question to question.

Do you own a portable stereo? ☐ Yes ☐ No

If yes, what is the brand name. Select as many as appropriate.

☐ Citizen	☐ Fisher	☐ Kenwood	☐ Pioneer	☐ Sharp
☐ Craig	☐ Hitachi	☐ Magnavox	☐ Samsung	☐ Sony
☐ Emerson	☐ JVC	☐ Panasonic	☐ Sanyo	☐ Other

If you make a mistake, click on the brand name again to erase the check.

How often do you use your portable stereo?

- ☐ **Daily**
- ☐ **3 times per week**
- ☐ **Once per week**
- ☐ **Seldom**
- ☐ **Never**

Continue

Product Category # 3

SECTION 1

VCRs (VHS)
(all alternatives include: 4 video heads, hi-fi stereo, 181 channel capability, remote control and on-screen programming)

0	Panasonic, $450, 8 event/1 year timer,1 year warranty, VCR Plus, Auto head cleaner
0	Samsung, $399, 8 event/1 year timer, 1 year warranty, Auto head cleaner
0	Hitachi, $430, 8 event/1 year timer, 1 year warranty, VCR Plus
0	Sanyo, $370, 6 event/1 year timer,1 year warranty
0	Sony, $499, 6 event/1 month timer, 3 year warranty

Total Score = 0

Continue

SECTION 1

Questions about VCRs

Instructions: Please move the cursor (mouse) and click on the appropiate response or provide a brand name or product name, as required. Use the mouse to move from question to question.

Do you own a VCR? ☐ Yes ☐ No

If yes, what is the brand name. Select as many as appropriate.

☐ GE	☐ Panasonic	☐ Samsung	☐ Sony
☐ Hitachi	☐ Philips	☐ Sanyo	☐ Other
☐ JVC	☐ RCA	☐ Sharp	

If you make a mistake, click on the brand name again to erase the check.

How often do you use your VCR?

- ☐ **Daily**
- ☐ **3 times per week**
- ☐ **Once per week**
- ☐ **Seldom**
- ☐ **Never**

Continue

Product Category # 4

SECTION 1

COLOR TELEVISIONS
(all alternatives include: remote control, on-screen programming

0	Toshiba, $350, 20" monitor, 181-channel, 1 year warranty, clock/sleep timer
0	RCA, $288, 21" monitor, 181-channel, 1 year warranty
0	Samsung, $329, 20" monitor, 126-channel, 1 year warranty, clock/sleep timer
0	Zenith, $377, 21" monitor, 178-channel, 1 year warranty
0	Panasonic, $429, 20" monitor, 155-channel, 3 year warranty, clock/sleep timer

Total Score = 0

Continue

Questions About Color Televisions

SECTION 1

Instructions: Please move the cursor (mouse) and click on the appropiate response or provide a brand name or product name, as required. Use the mouse to move from question to question.

Do you own a color TV? ☐ Yes ☐ No

If yes, what is the brand name. Select as many as appropriate.

☐ Beaumark	☐ Hitachi	☐ Quasar	☐ Samsung	☐ Toshiba
☐ Electrohome	☐ JVC	☐ RCA	☐ Sanyo	☐ Zenith
☐ Emerson	☐ Magnavox	☐ Panasonic	☐ Sharp	☐ Other
☐ GE	☐ Nec	☐ Philips	☐ Sony	

If you make a mistake, click on the brand name again to erase the check.

How often do you watch TV?

- ☐ **Daily**
- ☐ **3 times per week**
- ☐ **Once per week**
- ☐ **Seldom**
- ☐ **Never**

Continue

SECTION 2

INSTRUCTIONS

THIS IS IMPORTANT INFORMATION!

In this section, you will be shown a total of eight (8) advertisements for various products and brands. These ads are for electronic products and have not been shown before. We are primarily interested in testing how effective the ads are in terms of their content and presentation. Your comments are extremely valuable to this study.

After viewing each ad you will be asked to respond to a few questions. You will not be able to return to view an ad once you have moved to the question screen.

Tell Me More

SONY VCR

At SONY we strive for excellence - to provide you with the quality and performance you expect. Crisp, clear picture. Distinctive stereo sound. Hassle-free programming.

SONY - quality you can depend on.

See It Hear It Experience It

Continue

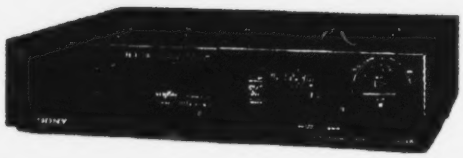
Panasonic Performance

At Panasonic we strive for excellence - to provide you with the quality and performance you expect. Crisp, clear picture. Distinctive stereo sound. Hassle-free programming.

Panasonic - quality you can depend on.

We Deliver Excellence

Continue



The SONY VCR.
Quality, performance, and state of the art technology. It's built to perform the way you expect.

SONY

Continue

A spectrum of color

We capture what Mother Nature created. Using the finest technology available, the Panasonic VCR is built to perform the way you expect. The brilliant picture and sound. The incredible versatility. The unmatched quality.

Panasonic VCR

Simply the Best

Continue

Samsung

Quality Performance - Easy to Use
We build our VCRs with features like
4-video heads,
on-screen programming,
and easy to use remote control.

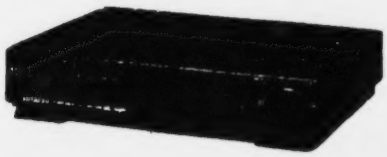
Samsung Performs for You

Continue

Simple
Affordable

The HITACHI VCR features 181-easily reached channels with a remote control. This VCR offers quality resolution with 4 video heads and enhanced stereo sound at a price you can afford.

HITACHI



Continue

Problem: low grade point average

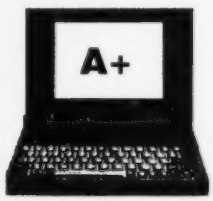
Solution: **Study Mate**

Tuition costs are high. The job market is competitive. Don't compromise your chances at getting the job you want. Improve your grades with the **STUDY MATE** electronic tutor. Studies have shown that students using **STUDY MATE** report up to a 20% increase in their GPA.

University course modules available: chemistry, English, economics, psychology, and more!

Continue

Make the Grade



Excel in your university studies

Tuition costs are high. The job market is competitive. Don't compromise your chances at getting the job you want. Improve your grades with the **Portable Tutor** electronic tutor. Studies have shown that students using **Portable Tutor** report up to a 20% increase in their GPA.

The **Portable Tutor** features modules in calculus, statistics, psychology, and more to help you excel in your university studies.

Portable Tutor

Continue

Who is the perfect teacher?

The one you can carry around in your hand and helps you learn what you need to know. Without any backtalk.

This battery operated Study Mate features modules like: calculus, economics, psychology, and more !

Study Mate

Continue

Success

That's what it's about. The Portable Tutor will help you impove your performance in your university classes. This hand-held electronic teacher can be taken anywhere . . . so you can make the grade. Modules available for most university courses.

Portable Tutor

Continue

Success is in

Pocket Tutor

You're sure to succeed when you use the Pocket Tutor
- an electronic tutor to aid in university studies
* hand-held *battery operated
* many university course modules available

Continue

You'll smile
when you make the grade

Handi Prof

This hand-held Handi Prof will make getting that important grade easier. Choose from many university course modules.

Success in your pocket

Continue

Questions about Ad # 1

SECTION 2

Please answer all questions

1. What type of product was displayed in the ad? (e.g. stereo, tape deck etc.)

2. What was the brand name of the product?

Use the tab key or the mouse to move to the next question.

3. Please write down all your comments and thoughts about the content of the ad (both the negative and the positive features)

4. How would you rate the overall effectiveness of the ad? (place the cursor over the appropriate box and then click down on the mouse)

not at all effective ☐ ☐ ☐ ☐ ☐ ☐ ☐ **very effective**

Continue

INSTRUCTIONS

SECTION 3

THIS IS IMPORTANT INFORMATION!

In this section we want to learn about preferences for 2 electronic products. One product, VCRs, is readily available in the marketplace. The second product, a hand-held electronic "tutor", is being considered for product development for university students.

You will read a scenario and then go through a choice situation for VCRs, followed by a choice situation for the electronic "tutor".

Tell Me More

INSTRUCTIONS

SECTION 3

THIS IS IMPORTANT INFORMATION!

At some point in each choice situation, the alternatives available will be described in terms of attributes or features. If you want a description of a particular attribute, move the cursor over the attribute and click down on the mouse.

The next page is an example of how the decision task might look for choosing a major at the university.

Go Back to Previous Screen

Tell Me More

Please note that the information in this example is made up for the purpose of illustrating the procedure, and is almost certainly not accurate.

Click on these boxes for descriptions of the attributes.

	Music	Pre-Med	Business
Percent Admitted	20	60	60
Quality of Teaching	80	24	65
Job Prospects	22	10	78

Click on this box to find out the job prospects for a business major.

If I were choosing a university major from among these alternatives, my choice would be:

Music | Pre-Med | Business

INSTRUCTIONS

SECTION 3

THIS IS IMPORTANT INFORMATION!

When you are ready to make a choice, select one of the alternatives by moving the cursor over the alternative you would choose and click on the mouse.

After you have made a choice, you will be asked to confirm your choice. If you respond "No" you will be given an opportunity to change your choice selection. If you respond "Yes", you will move on to the next task.

Go Back to Previous Screen

Tell Me More

Please Read Carefully

SECTION 3

Scenario:

You have decided to make 2 purchases - a VCR and an electronic "tutor" to help with your academic performance at university. You have read the ads about these products in the newspaper and you are ready to gather some more information and make your choice.

Your best friend considers herself/himself to be very knowledgeable about electronic equipment and you anticipate having to explain to your friend the process you went through when you determined your choice. You know that when your friend chooses a particular alternative, he/she goes over the attributes or features available and considers the importance of each attribute before deciding upon a particular alternative.

For example, when you purchased a portable stereo a few months ago, you noted how you went through each attribute such as price, number of speakers, high speed dubbing capability, etc. on all the portable stereos that you considered so that you could explain how you systematically determined your choice to your friend.

Continue

Please Read Carefully

SECTION 3

Scenario:

You have decided to make 2 purchases - a VCR and an electronic "tutor" to help with your academic performance at university. You have read the ads about these products in the newspaper and you are ready to gather some more information and make your choice.

Your best friend considers herself/himself to be very knowledgeable about electronic equipment and you anticipate having to justify your choice to your friend. You know that your friend will evaluate your decision and will specifically ask you what reasons made you decide upon a particular alternative.

Continue

Please Read Carefully

SECTION 3

Scenario:

You have decided to make 2 purchases - a VCR and an electronic "tutor" to help with your academic performance at university. You have spent some time reading the ads about these products in the newspaper and you are ready to gather some more information and make your choice.

Continue

SECTION 3

If you were to choose a VCR from the following alternatives, before gathering any more information, which alternative would you choose?

(Please note that you may change your mind about your choice after getting more information about the alternatives.)

My choice would be:

Hitachi | Panasonic | Samsung | Sony

SECTION 3

If you were to choose an electronic tutor from the following alternatives, before gathering any more information, which alternative would you choose?

(Please note that you may change your mind about your choice after getting more information about the alternatives.)

My choice would be:

Handi Prof | Portable Tutor | Study Mate | Pocket Tutor

	Hitachi	Panasonic	Samsung	Sony
Auto Head Cleaner	no	yes	yes	yes
Average Repair Cost	$55	$100	$80	$80
# of units needing repair	[illegible]	[illegible]	[illegible]	[illegible]
Price	[illegible]	[illegible]	[illegible]	$450
Timer	[illegible]	[illegible]	[illegible]	[illegible]
VCR Plus	[illegible]	[illegible]	no	yes
Warranty	1 year	1 year	1 year	3 years

Note: All alternatives include 4-video heads, hi-fi stereo, 181 channel capability, remote control, and on-screen programming.

If I were buying a VCR and I could choose among these alternatives, my choice would be:

Hitachi | Panasonic | Samsung | Sony

	Handi Prof	Portable Tutor	Study Mate	Pocket Tutor
Price of electronic tutor	$80	$90	$85	$70
Price of each course module	$30	$35	$35	$25
Warranty	1 year	2 years	2 years	1 year
Average GPA Increase	18%	20%	20%	18%
Average Battery Life	6.5 hours	6 hours	6 hours	6.5 hours
Modules specific to UofA	yes	yes	yes	no
Modules available	Arts, Science, Eng	All subject areas	Arts, Sci, Eng, Bus	Arts & Science

If I were buying an electronic tutor and I could choose among these alternatives, my choice would be:

Handi Prof | Portable Tutor | Study Mate | Pocket Tutor

SECTION 3

Please indicate your level of agreement with the following statement, by placing the cursor over the appropriate box and then clicking down on the mouse.

I feel confident that the choice I made is the right choice for me.

strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ **strongly agree**

Continue

SECTION 4

THIS IS IMPORTANT INFORMATION!

In this section we want you to explain the reasons for your choices in Section 3. You will be informed of the choices you made previously.

Tell Me More

SECTION 4

Your Choice of a VCR: Samsung

In describing your choice of a VCR in the last section, what reasons would you give to your friend? How would you **justify** your choice? (Type in your response).

Continue to the next question

SECTION 4

Your Choice of an Electronic Tutor: Portable Tutor

In describing your choice of an Electronic Tutor in the last section, what reasons would you give to your friend? How would you **justify** your choice? (Type in your response).

Continue to the next question

SECTION 4

Your Choice of a VCR: Samsung

If, instead of justifying your choice of the VCR to your friend, he (she) asked you to describe the **process** that you went through in making your choice, what would you tell him (her)?

For example, did you consider specific attributes or features before deciding upon a particular alternative?

Continue to the next question

SECTION 4

Your Choice of an Electronic Tutor: Portable Tutor

If, instead of justifying your choice of the electronic tutor to your friend, he (she) asked you to describe the **process** that you went through in making your choice, what would you tell him (her)?

For example, did you consider specific attributes or features before deciding upon a particular alternative?

Continue to the next question

In this last portion of the survey, we would like you to indicate your level of agreement with a number of statements, by placing the cursor over the appropriate box and then clicking down on the mouse.

1. I found the instructions explained clearly enough that I knew what I was supposed to do.

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

2. This task required a great deal of mental effort.

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

3. If I was purchasing electronic equipment, the mental processes that I would use would be very similar to the ones I used when making choices in this task.

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Continue

4. When I make purchases such as the ones I did in this task, I usually tell my friends (or family) the reasons why I chose a particular product.

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

5. When my friends tell me about a purchase, they usually tell me the reasons why they purchased a particular brand.

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

6. When I make a purchase such as the electronic equipment in this survey, I often look for reasons to justify my choice before I made the purchase.

Strongly Disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Continue

Thank you for participating in this study. This survey is now complete; however, we would ask that you sit quietly until everyone has finished.